



A
GENERAL COLLECTION
OF THE
BEST AND MOST INTERESTING
VOYAGES AND TRAVELS
IN ALL PARTS OF THE WORLD;
MANY OF WHICH ARE NOW FIRST TRANSLATED INTO ENGLISH.

DIGESTED ON A NEW PLAN.

BY JOHN PINKERTON,

AUTHOR OF MODERN GEOGRAPHY, &c. &c.

ILLUSTRATED WITH PLATES.

VOLUME THE FIFTH.

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1809.

A
GENERAL COLLECTION
OF
VOYAGES AND TRAVELS.

TRAVELS IN THE TWO SICILIES,

AND

SOME PARTS OF THE APENNINES.

TRANSLATED FROM THE ORIGINAL ITALIAN OF THE

ABBÉ LAZZARO SPALLANZANI,

Professor-Royal of Natural History in the University of Pavia, and Superintendant of the Imperial Museum in that City; Fellow of the Royal Society of London; and Member of the Academies of Prussia, Stockholm, Gottingen, Turin, Padua, &c. &c.*

ADVERTISEMENT BY THE TRANSLATOR.

THE name and established reputation of the Abbé Spallanzani must certainly be a sufficient recommendation of any work he gives to the public, especially of one like the present, on which he appears to have bestowed a more than ordinary degree of labour and attention. The variety of objects, highly interesting to the naturalist and the philosopher, on which it treats, may be seen in the following introduction, which contains, in part, a summary of the work.

In the translation, fidelity and accuracy have been principally studied. The reader, it is presumed, has before him a faithful transcript of the original (if the expression may be allowed) in his own language. Where the meaning admitted of no doubt, the translator thought himself at liberty to depart from the phraseology of his author, to give his idea with greater perspicuity: a licence which the different idioms of language will frequently render necessary: but where any shadow of ambiguity appeared (and in every work, especially works of science, such ambiguities of expression will occasionally be found) he has scrupulously adhered to the literal expression of his text, that the reader may be enabled to form his judgment in the same manner as from the original.

* The parts least interesting to the general reader are omitted.

As the Abbé has continually employed the terms of what is called the new nomenclature of chemistry, it has been thought proper, for the benefit of readers not familiar with this science; to add, in a parenthesis, the more usual names of chemical substances; as for instance, to subjoin to *hydrate of alumine* the common term of *alum*; and to *hydrate of soda* that of *soda-salt*. The Abbé has likewise used the term *caloric*, on all occasions, instead of heat or warmth. In this the translator has not judged it advisable to follow him, except when he has employed it in the proper chemical sense of the *matter of heat*.

The plates are faithful copies of those in the original, but more carefully and elegantly finished. Some may, perhaps, object to the disproportionate size of the human figures represented in plates II. III. and V. This objection the author has foreseen, and, at the end of Vol. IV. apologizes, by remarking, that "the painter conceived he might be permitted this licence, as, had he attempted to observe the rules of proportion, these figures would have been scarcely discernible *."

The work in the original is dedicated to Count Wilczek, Imperial Plenipotentiary of the General Administration of Austrian Lombardy; but as this dedication only contains the eulogiums of which such compositions usually consist, it has been omitted.

INTRODUCTION.

THE zeal with which I have always been animated to contribute, as much as might be in my power, to the improvement of the Public Imperial Museum of Natural History in the University of Pavia, by enriching it with the new and important productions I procured in the various journeys and voyages I undertook both in Italy and other countries, incited me to travel, during the summer and autumn vacations, into the Two Sicilies. Though this Museum abounded in other kinds of natural productions, it was extremely deficient in volcanic matters, which merely consisted of a few trivial scoriæ of Vesuvius, and some extremely common lavas of the same mountain, that, having been cut into tablets and polished, had lost their distinguishing characteristics, and consequently could little contribute to the instruction of youth and the advancement of knowledge.

As I knew that no countries in Europe could furnish a more ample and valuable collection of volcanic products than the Phlegrean Fields, Mount Etna, and Eolian, or Lipari Isles; I resolved to visit them, and employed several months in laborious but useful researches. To make a proper choice, however, of the substances suitable to the design I had in view, it was necessary to examine on the spot the various qualities of the bodies composing those volcanized regions. This I performed with the same diligence and care I have usually exerted in the examination of other natural objects. Still more to enable myself to make this selection, and correct my judgment with respect to these subjects, I had read, and then re-perused, whatever had been written by travellers and the most eminent naturalists relative to volcanos, and was sincerely grateful to them for the instruction I derived from their works. In the course of this inquiry, however, I discovered what I had often experienced before, with respect to other subjects, in which I had been preceded by other naturalists, that, notwithstanding the elegant and interesting accounts they had given us of the countries which have suffered the action of fire, it was

* These plates are omitted as a disgrace to the state of the arts in the eighteenth century. The view of the crater of Etna is that of a well!

still possible to add to them by my researches, and throw new light on volcanic knowledge. This I say not to arrogate to myself any merit, and still less to detract from that of others. The powers of the human mind are so limited, that it never can entirely exhaust the subject it investigates. Other naturalists who shall hereafter diligently explore the countries through which I travelled, it is not to be doubted, may improve this part of natural history with still new discoveries. In like manner, though others have written of the Phlegrean Fields, Etna, and the Eolian Isles, the observations I have made appear to me to merit publication.

The method in which I prosecuted my researches in these Travels was the following: I have endeavoured to study volcanic countries as mountains should be studied. The lithologist who would acquire an accurate knowledge of the latter, attentively considers their structure of rock, the whole of their huge masses, the position and direction of the various parts or strata which compose them, and the intertexture and relations of those strata. I have adopted the same mode of inquiry in the course of these travels. Fire in conjunction with elastic gases has formed whole mountains and islands; but all of them have not been produced in the same manner, nor are they composed of the same substance. Here we find large masses of tufa; there of scorie and lavas; in another part, pumices, crinoid, and glass; and in another, a mixture of all these substances. It was therefore necessary to examine them on the spot, and observe, both when they were separate and intermingled, their relations, directions, mixtures, &c. without once losing sight of the peculiar composition of these volcanic mountains, every part and recess of which it was requisite I should explore.

In these inquiries I particularly directed my notice to two objects: the central summit of the islands and mountains, and their shores. The former is usually the first sensible effect of the subterranean conflagrations, the part which first emerges from the waves, which often preserves the crater entire, and sometimes burning, but more frequently only its recognizable traces. The shores of volcanic islands and mountains bathed by the sea, were also peculiarly entitled to attention, nor do I know that any volcanist who has hitherto travelled has made them one of the objects of his inquiry. We know how much it conduces to an accurate knowledge of the structure of mountains, to cross, or go round them in the beds of torrents which have surrounded their foundations, and laid bare a part of their sides; thus revealing, if I may use the expression, their internal organization, which without this aid would have been sought in vain from external appearances. The sea, by incessantly beating with its furious waves the skirts of the islands, has caused fractures and ravages incomparably greater than those occasioned by rivers. By coasting, therefore, these shores in a boat, landing where they appear to invite particular attention, and examining their open sides, and rocks half fallen down and falling, we may observe a variety of important facts conducive to the improvement of that kind of science. I shall not here enlarge on the advantages to be derived from coasting volcanic islands; in the course of this work they will be proved by facts.

The researches I made in volcanic countries, though necessary, and highly instructive, were not, however, sufficient to complete my design. As lithologists are not satisfied with knowing the structure, stratification, and other general qualities of mountains, but endeavour likewise to discover the nature of their component parts, I resolved not to depart from the same method of enquiry. It is true that some volcanic productions are so altered by the fire, that it is difficult to ascertain the nature of the earths from which they have been produced, unless we call in aid the processes of chemistry. Such are enamels, glasses, and frequently pumices. But lavas, which, in the greater

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part of the places where I made my observations, are abundant beyond all belief, are seldom so changed by the fire as not to retain the evident characters of their primitive rocks.

I began, then, by considering the external appearance and qualities of the places I examined, as far, at least, as circumstances would permit.

Whoever has undertaken to travel among mountains, in order to make researches relative to the fossil kingdom, is not ignorant to what changes the surfaces of stoney substances, even the most solid and hard, are subject, from the action of the elements during a long series of years and ages. Hence, if he would form an accurate judgment of the stones he examines, he will not fix his attention on those found on the surface of the earth, but rather on those buried at some depth, and will frequently forcibly break and detach them from the internal masses of which they are a continuation. Still greater changes take place in some parts of the mountains which throw out fire, from the action of sulphureous acid vapours, besides that of the atmosphere and of time; and very frequently the volcanic product, which on the surface seems to be of one kind, and at some depth, of another, is in fact the same, but more or less changed in the first instance by the action of the atmosphere, or that of sulphureous vapours.

To render my researches more accurate and certain, it was necessary that I should not content myself with a single inspection of the volcanic substances, on the spot where I gathered them. I therefore, when I returned to Pavia, re-examined them with the greatest care, in the retirement of my study; not only with the naked eye, but with the aid of the lens, before I began to characterize and describe them lithologically. The reader will find some of the descriptions rather diffuse; and, perhaps, I may be charged with having been too minute. But it appeared to me that I could not be more concise; as a detailed description of such products can alone enable us to discover to what kind of rocks they appertain, and what is the particular characteristic of the volcanic countries in which they are found. Those who, when treating of volcanos, have been sparing of such descriptions, have left us imperfect works, though in other respects they may be very valuable. All who are versed in these subjects, are acquainted with the account of the famous eruption of Etna in 1669, and the memoirs relative to different remarkable conflagrations of Vesuvius by Scrao, Della Torre, Sir William Hamilton, and Bottis. With respect to what regards the currents of lava which those two volcanos at those times poured forth, the symptoms and phenomena that accompanied them, and the other circumstances deserving notice which preceded and followed them, their histories certainly merit great commendation. They will be highly valuable in the estimation of every lover of volcanic science; and I have frequently, in the course of this work, derived such assistance from them as demands my grateful acknowledgment. But from these relations, what idea can we in general form of the nature of the products ejected, and the currents they have formed? When do they describe with sufficient accuracy a single substance? After having read these relations of the violent eruptions which have burst from the sides of Vesuvius and Etna, we remain profoundly ignorant to what primitive rocks they appertain. I mean not by these remarks to injure the reputation these writers have justly acquired. Their deficiency in lithological studies, not cultivated at that time as in the present, is a sufficient excuse; I intend only to shew the necessity there is for circumstantial description, which, in fact, form the basis of all solid science.

It is necessary that I should here mention, with respect to the descriptions I have given of the different products of the various volcanic places I visited, that, though I have treated diffusely, and in detail, of those of the Phlegrean Fields, situated to the west

west of Naples, and of others of the Eolian or Lipari Isles; I have only spoken incidentally of the productions of Vesuvius and Etna, though both these volcanos have furnished me with a great number of specimens for the Museum at Pavia; not only because that to have examined these two mountains minutely, would have required years instead of a few months; but because a description of these has already been executed with great ability by the Chevalier Gioeni, in his *Lithologia Vesuviana*, and by M. Dolomieu, in his "Descriptive Catalogue of the Products of Etna."

The opportunity afforded me by having these volcanic substances continually under my inspection at Pavia, induced me to make new experiments on them. It is certain, that the greater part of them contain iron. Yet the proof of this by experiment was not superfluous, as the greater or less quantity of the martial principle might thus be discovered. I therefore used, according to circumstances, the magnetic needle, or magnetized knife. I applied the former to the products reduced to powder, and the latter to those in fragments; taking care that they should always be, as far as I was able to effect it, of the same configuration and volume. I then observed the different distances at which they attracted the magnetic needle, without noticing the pieces which exerted no such power, though I do not mean by that to deny that they contained iron*.

I was attentive at the same time to an enquiry of much greater importance. Vesuvius, Etna, the Eolian Isles, and Ischia, are large mountains formed of rocks which have undergone liquefaction, and sometimes a true vitrification; such has been the violence of the subterranean conflagrations. What fire can we produce equivalent to these effects? I have discovered that the fire of the glass-furnace will completely fuse again the vitrifications, enamels, pumices, scorix, and lavas of these and other volcanic countries. The same will, in like manner, vivify rocks congenerous to those from which these mountains have originated by the means of subterranean conflagrations. A less intense fire, on the contrary, produces no such effect on any of these substances.

As I wished to attain to the most rigorous accuracy in this experiment, I was not satisfied with discovering that the fire of the glass furnace was capable of effecting these fusions; I determined, if possible, to ascertain the precise degree of heat necessary to produce them, for which purpose nothing could be better adapted than the pyrometer of Wedgwood. This instrument, it is well known, is composed of two parts; the thermometric pieces and the gage. The former are small cylinders of very fine clay. The latter, which is six inches long, is formed by two pieces of the same earth, the internal sides of which are straight and smooth; but so disposed as to be more distant from each other at one extremity than the other, thus forming a converging space divided into two hundred and forty parts. The greater aperture of this gage is the beginning of the scale, and denotes the heat which produces a beginning of redness in iron. If, therefore, one of the clay cylinders shall have been exposed to a greater heat, it will be contracted, and sink lower between the converging sides; and, the sides being graduated, the degree at which it stops will be the measure of its contraction, and consequently of the degree of heat it has undergone; the cylinders, as the inventor has observed, representing the mercury, and the converging sides the scale of the thermometer.

To ascertain, therefore, the degree of heat in the glass furnace necessary for the fusion of these volcanic productions, and the rocks whence they derive their origin, I made use of this pyrometer in the following manner. I placed in the furnace, near the substances I intended to fuse, one or more of the clay cylinders abovementioned, in a case of

* As the iron is sometimes in the state of oxyde (calx), I employed the usual methods to revive it in the productions I examined.

the same clay, and let them remain there the whole time necessary for the fusion of those substances. I then measured their contraction by the gage; and found that the heat of the glass furnace was $87\frac{1}{2}$ degrees of this pyrometer; a heat, according to the observation of the inventor, but $2\frac{1}{2}$ degrees less than that of welding iron, which latter heat corresponds to $12,777^{\circ}$ of Fahrenheit's thermometer*. In fact, filings of iron (in which the surface of the metal is greatly enlarged) being continued four-and-twenty hours in the glass furnace of Pavia, of which I always made use in these experiments, conglutinated into a solid though friable body, and shewed an evident beginning fusion. Whence I conclude that a greater heat is usually kept up in these furnaces than is necessary for the fusion of glass.

Though the blowing pipe did not in general greatly conduce to the success of my experiments, I sometimes found it useful. In some cases I likewise had recourse to the assistance of fire excited by oxygenous gas (dephlogisticated air).

There is scarcely any natural product, volcanic or not volcanic, of which I have treated in this work, that I did not try in the fire, in one or other of the manners I have described, and frequently more than once. These experiments in the dry way I often accompanied with others in the humid, with respect to the productions of volcanic fire. The manner in which I proceeded was as follows:

When the external appearance of these products perfectly agreed with that of earths not volcanic before known, and analyzed by able chemists; I thought I might determine the genus of the volcanic production without analyzing it in the humid way; and when I made experiments on a few pieces, I found I was not deceived. But when the external appearance appeared to me new, and not to agree with that of the earths already known, I then had recourse to an examination by the humid method, by which I elucidated the genus, and frequently the species, of these substances. Before, therefore, I proceeded to describe any pieces I had collected, I was certain, or thought myself so, that I had obtained a sufficient knowledge of them. And when I could not arrive at this knowledge, but remained uncertain to what genus they appertained, I have never failed to express myself doubtfully. In these researches, equally laborious, delicate, and necessary, I have employed much of my time, not without considerable expence. In my volcanic travels I have been obliged to take upon myself the parts both of naturalist and chemist. The natural history of fossils is so closely connected with modern chemistry, and the rapid and prodigious progress of the one so exactly keeps pace with that of the other, that we cannot separate them without great injury to both. But as the chemist in his laboratory can reason but imperfectly concerning the mountains, the component earth of which he analyzes; so the observations of the lithological traveller must always be defective when not conjoined (at least when it may be necessary) with chemical investigations. What is true of fossils not volcanic, must likewise be so, in a certain degree, and with necessary allowances, of volcanic fossils. Here, in fine, neither observation alone, nor experience alone, are sufficient; but both must join to conduct the investigator of nature, or he cannot be successful in his researches.

Where my experimental enquiries have been short, I have incorporated them with my narrative; as they are relative to the productions I met with in the different places I visited. But more than once I have found it convenient to act otherwise; and the subjects treated, appear to me to justify the method I have adopted.

What is the activity, in general, of volcanic fires, has been a question long agitated, and which is certainly of difficult solution. In this dispute, writers have gone into opposite extremes; some asserting that these fires are extremely active, and others that they

* Journal de Rozier, tom: LXX.

are very feeble, while all endeavour to support their opinions by facts. Having treated on volcanos so much at length in this work, I could not avoid considering this question: I have weighed the arguments on both sides without prejudice; I have made various experiments; and declared in favour of the opinion which appeared to me to have the strongest support from reason and from facts.

The nature of elastic gases by which the liquefied matters of volcanos are penetrated and agitated, was another subject well deserving attentive consideration. The vacuities, inflations, and tumors, which such matters frequently retain in a state of congelation, can only be ascribed to the elasticity of these gases while they were in a state of liquidity. Our common fire will reproduce in them these gases equally with the volcanic. In fact, many lavas, pumices, glasses, enamels, and scoriæ, though by pulverization they may be deprived of these vacuities, which are more or less large, and usually orbicular, recover them by refusion in the furnace; and in many of these bodies the gaseous bubbles are so abundant, that by their great inflation, while in actual fusion, they force them to flow over the edges of the crucible. These observations led the way to enquiries relative to the qualities of these gases, by liquefying in chemical furnaces volcanic substances reduced to powder, and placed in matrasses fitted to a chemical mercurial apparatus. By a great number of experiments of this kind I discovered the true nature of these gaseous substances, of which our knowledge was before very vague and uncertain.

This discovery naturally led to the enquiry what part the elastic gases take in the eruptions of volcanos; and this enquiry to a discussion of the causes of those eruptions.

The chemical processes I employed to ascertain the characters of the gases of volcanic productions likewise discovered to me a new fact, which was, that several of these productions contain muriatic acid. This discovery again produced new enquiries*.

Lastly, I must not omit the researches relative to the origin prismatic or basaltiform lavas. It is an opinion almost universal, that lavas take this regular figure in the sea, by the sudden condensation and congelation they suffered when they flowed into it in a fluid state. I could not have met with examples of this kind more proper to enable me to form a judgment on the subject than those which presented themselves to my view while coasting the shores of Italy, a great part of Etna, and the whole of the Lipari islands.

These different discussions relative to the efficacy of subterraneous conflagrations, the gases of volcanic productions, the causes of the eruptions of volcanos, and the muriatic acid contained in various of their products; with the enquiries concerning the origin of basaltiform lavas—to treat them at length, as they required, would have too much broken the thread of the narrative of my travels. I have therefore placed them in such a manner as not to interfere with my accounts of the Phlegrean Fields, Etna, and the Eolian Isles.

In the volcanized countries in which I travelled, there are four craters still burning, Vesuvius, Etna, Stromboli, and Vulcano. To all these four, from an ardent desire of obtaining knowledge, I wished to make a near approach. By Vesuvius this wish was not gratified; but Etna was more condescending, though incomparably more formidable; and a similar good fortune attended me at Stromboli and Vulcano. The clear and distinct view I had of these three craters was equally pleasing and instructive. The crater of Etna I delineated myself; the views of Vulcano and Stromboli are the work of a draughtsman I took with me for that purpose, and who likewise furnished me with

* In these chemical experiments I was greatly assisted by the Signors Nocetti, father and son; the former operator in the public school of chemistry in Pavia, and the latter repeater in the same. They are well versed in chemical science, and are entitled to my grateful acknowledgments.

drawings of some other volcanic mountains described in this work. I shall only add, that all these designs have been retouched and greatly improved by Sig. Francesco Lanfranchi, an eminent painter in the university of Pavia.

The origin of the Lipari islands, which are the productions of fire, was certainly the principal motive of my visiting them; yet in many other respects they are certainly very interesting. The character, manners, and customs of the inhabitants; their population, agriculture, and commerce, are objects well deserving enquiry, and have the greater claim to the attention of an Italian, from their being so little known in Italy.

I have also made some observations on the animals in those islands, as, for instance, on a kind of birds which with us are birds of passage, but there (in part at least) stationary; I mean swallows. Some years ago I made observations on the natural qualities of several species of swallows (the *hirundo rustica*, *urbica*, *riparia*, *apus*, *melba*, Linn.), and to these I now add those I made in the Lipari islands.

The environs of Messina, where, after I had finished my volcanic travels, I remained more than a month, afforded me much instruction, from the variety of natural objects they presented. Though four years and a half had elapsed since that unfortunate city had been laid in ruins by earthquakes, the melancholy scene was still fresh in every one's memory. A great part of the public and private edifices were still in the same ruinous condition to which they were reduced by that calamitous event. Numbers of the inhabitants still continued to lodge in the half-destroyed houses, and others in huts and sheds; while they all appeared oppressed and overwhelmed with fears from which they had not yet recovered. The impressions made on me by what I saw of the effects of this calamity were such that I could not refrain from giving a brief account of the melancholy situation in which I found Messina, and of the destruction occasioned by the dreadful earthquake in 1783.

Scylla and Charybdis, the former distant twelve miles from Messina, and the latter about a hundred paces within the famous Strait, were two objects to which I first turned my attention. That part of the sea being then calm, at least as calm as the Strait of Messina can be, I was enabled to take a near view of them both, and even to pass over Charybdis in a boat. I also made enquiries of the Messinese sailors, who are employed the greater part of the year in that Strait, and consequently have an opportunity of forming a just and precise idea of these two celebrated places; and from what they told me, and the observations I made myself, I am convinced that Charybdis is not a real whirlpool, as has been hitherto believed.

In the Strait of Messina I found other instructive natural curiosities furnished by the fisheries for the sword-fish (*Xiphias gladius*, Lin.), the ravenous shark (*Squalus carcharias*), and for coral (*Isis nobilis*).

Being at Messina at the time of the annual passage of the sword-fish through the Strait, I was present at the fishery, which appeared to merit some description, from the singular form of the vessels employed in it; the method of striking and taking the fish; and the qualities and periodical migrations of the animal. I have likewise made some observations on some fish of the genus of the *squalus*, particularly the shark, sometimes so dangerous to fishermen in that sea.

Coral, for which the Messinese mariners fish the whole year, by tearing it with nets suitable to the purpose from the rocks at the bottom of their Strait, has been long an ambiguous production, and made to pass through all the three kingdoms of nature; some considering it as a fossil, others as a vegetable; until at length it has been proved to appertain to the class of animals, though it has the appearance of a plant; and is therefore now properly classed among the zoophyta. The excellent observations of

Peyssonel and Vitaliano Donati are well known; nor ought Marfigli to be denied the praise he merits, though a zealous maintainer that coral is a plant. Notwithstanding, however, these great discoveries, much was wanting to a complete history of this noble zoophyte, to which, I flatter myself, I have in some small degree contributed by the observations I made on it at the time of the fishery, at which I was present.

On this occasion, while the fishermen were throwing the net for the coral, I employed myself in researches for marine animalcula. I carefully examined every piece of a stalk, leaf, or other fragment of a marine plant, or any thing else which hung to the net, having learned from experience that these substances sometimes contain wonders in the class of animated beings; for, as Pliny has wisely remarked, nature is greatest in her least productions. When the fishermen, therefore, turned up their nets to free them from the weeds which were mixed with the coral, I put these weeds into glass vessels, filled with sea-water, to observe the animals adhering to them, and select those which appeared to present any remarkable novelty. Several of these were not wanting; of the genera of the *aspidia* and the *eschara*. I likewise discovered some small polypi, in which I could distinctly see the circulation of the fluids; which has not, to my knowledge, been before observed in these minute animals. The description I have given of them is accompanied with the necessary figures.

The surface likewise of the Strait of Messina was equally favourable to my researches with the bottom. In other parts of the Mediterranean, the Adriatic, the Archipelago, and the Strait of Constantinople, I had examined several species of those mollusca which are commonly called medusæ. I had admired the simplicity of their organization, and especially that property by which certain species of them, of the weight of twenty pounds or more, dissolve almost entirely into a liquor, nothing remaining of them but some thin and dry pellicles, which are only a few grains in weight. I had never, however, met with any of that phosphorescent kind which Læssingius tells us he saw in the ocean between Spain and America. The mention he has thus made of them, without adding any further observations, can only serve to excite the curiosity of the reader; nor do I know that any other author has described this rare animal. In the Strait of Messina I had the pleasure to find abundance of these phosphorescent mollusca, and the stay I made in that city afforded me an opportunity to examine their organization, their motion, and the beautiful light they emit in the dark.

I concluded my researches relative to the natural objects in the vicinity of Messina, by examining the shore, hills, and mountains, which on the side opposite the sea look toward that city. I could discover no sign of volcanization; but I observed, first, immense masses of testaceous and other animals petrified, the species of which were perfectly distinguishable. Secondly, granite, which probably is a continuation of that of Melazzo, distant from Messina thirty miles to the north; and with respect to which I endeavoured to ascertain whether it formed strata, as some suppose, or only great masses, as is the opinion of others; as also whether it contained within it petrified marine bodies, as has been conjectured. Thirdly, sand stone, which, it appears to me probable, forms, in a great measure, the bottom of the Strait of Messina, extending to the point Peloro, and being reproduced by a petrifying principle. We shall see that by means of this principle, human skeletons, and other extraneous bodies, are sometimes found included in it; and that, in consequence of the same, at the part near Peloro, where the Strait is narrowest, it is probable that Sicily, losing the name of an island, will one day be again joined to Italy.

Having made the circuit of the Phlegrean Fields, the Eolian Isles, and Etna, the principal objects of my travels, I returned to Pavia, going by sea from Naples, with-

but the least thought of making any new observations. But the lake of Orbitello, celebrated for the immense quantities of large eels (*Mura anguilla Linn.*) it produces, became a new incentive to my curiosity; and a dead calm detaining the vessel in which I had taken my passage several days at Porto Ercole, a few miles distant from Orbitello; as I could easily obtain as many eels as I chose, I examined them with great attention, to discover, if possible, the manner in which they propagate their species, since, notwithstanding the numerous experiments that have been made both by ancient and modern naturalists to elucidate this question, it is not yet known with certainty whether they are viviparous or oviparous. To the experiments I now made, when I returned into Lombardy, I added many others in the following years, made in every season.

With this view expressly I repaired to the lakes of Comacchio, which, with that above-mentioned, abound more with this fish than any in Europe. I here assiduously studied the various qualities of the animal, in order to illustrate its history, which is in many respects deficient and obscure.

The last place at which I landed before my arrival at Genoa, was the island of Elba, where I was obliged to remain five days in consequence of another calm. I profited by this delay to visit the ancient and celebrated iron mines, where I procured for the Imperial Museum at Pavia some noble specimens of that metal crystallized, and augmented the copious collection I carried with me with some sulphures of iron (pyrites).

I returned to the university about the end of the year 1788, having employed six months in my travels in the two Sicilies; with which, though they were at my own expence, like the greater part of my other travels, I am well satisfied, since I have been able to contribute something to that noble public institution the Museum at Pavia; but my satisfaction will be still greater, if the work I now present to the public be approved by its readers.

Thus I employed the summer and autumn vacations of that year. Some time before, but especially in the vacations of 1789 and 1790, I made researches among the mountains of Modena and Reggio, with respect to objects which, as they have a relation to volcanos, may have a place in this work.

The fires of Barigazzo, which burn on the Apennines of Modena, have been long known. These consist of groups of feeble flames collected in a narrow space, which rise above the earth, are almost always visible, and, if by chance they become extinct, may be rekindled by bringing a small flame to the spot where they were. The accounts of them, however, are so few, and so defective, that at most they can only serve to compare the present state of these flames with what it once was. The light afforded by modern physics enables us to affirm, without farther examination, that the cause of this feeble fire must be hydrogenous gas (or inflammable gas). I made a journey to Barigazzo purposely to ascertain this, and found it to be the fact. In that vicinity there are six other similar fires, at present only known to the Alpine peasants, all originating from the same principle.

But in the present accurate state of our knowledge relative to æriform gases, it is too little to say and prove that the cause of these various flames is hydrogenous gas. The following are the principal enquiries which I think it necessary for me, as a naturalist, to make with respect to these fires, and such objects as may have a relation to them.

First, to examine the structure and composition of those mountains; and here I shall incidentally have occasion to speak of *Cimone*, not far distant from Barigazzo, and the highest mountain of our Apennines.

Secondly, carefully to remark the qualities of each of these fires, and the phenomena accompanying them.

Thirdly, to compare these fires nourished by natural hydrogenous gas, with those produced by hydrogenous gas procured by art.

Fourthly, to make a rigorous analysis of the hydrogenous gas of the fires of Barigazzo and the other neighbouring places, by means of the chemical mercurial apparatus; and to carry to those Alpine heights vessels to contain the different æriform fluids, and instruments necessary for these analyses.

Fifthly, to make the same analysis of the earths from which these fires arise. And here I must observe by the way, that having made at Barigazzo an excavation of some depth and size, in order to obtain the earth pure; the fires multiplied so much, and became so powerful, that, after I had left the place, the hollow was employed as a furnace for lime, and lime-stone as perfectly burnt in it as in furnaces prepared for the purpose.

Sixthly, to examine what may be the matters generative of this inexhaustible supply of hydrogenous gas, which has been so long continually developed; it being certain, from authentic documents, that these fires have burned for a century and a half.

In the hills of Modena and Reggio we find certain places which the people of the country call *Salze*, and which are a kind of volcanos in miniature, having the form externally of the truncated cone, and internally of the inverted funnel. They sometimes throw up into the air earthy matters; which at other times overflow, and, pouring down their sides, form small currents. After the manner of burning mountains, they frequently open with several mouths, and like them rage, thunder, and cause slight earthquakes around them. But in the true volcanos the primary agent is fire; in these *salze* the generative principle is entirely different.

Some of them have hitherto remained wholly unknown to naturalists; of others authors have written, but have described the phenomena with little accuracy and frequent exaggeration; not to mention that, at the time when they wrote, the nature of the agent from which these phenomena derive their origin was not discovered.

These *salze* have claimed my attention equally with the fires above mentioned; and I have applied myself to study them with equal assiduity, and with the same chemical analysis; and as they both, after the manner of volcanos, undergo changes which appear sometimes to have relation to those of the atmosphere, I have judged it necessary frequently to visit them, and in different seasons to observe the various phenomena, and with more certainty discover the secret causes to which they owe their origin.

The Travels I now present to the public, and of which I have here given the summary, will be speedily followed by another work containing an account of my voyages to Constantinople, in the M. diterranean, and in the Adriatic.

TRAVELS, &c.

CHAP. I.—A VISIT TO VESUVIUS DURING THE TIME OF AN ERUPTION.

Little notice taken by the Neapolitans of the smaller eruptions of this volcano—Phenomena observed by the author on his arrival at Naples—His approach near to the crater prevented by showers of ignited stones, and acid-sulphureous fumes—Extraordinary phenomenon relative to these showers—Explication of that phenomenon—Remarks on the congelation of a torrent of lava—Observations on a stream of lava flowing within a cavern—Projected experiment for measuring the quantity of heat in the flowing lava—Other observations on the lava issuing from a subterraneous cavity—Remarkable cataraet formed by it in its passage—Length, breadth, and termination of this torrent—Phenomena of this eruption of Vesuvius compared with those of preceding ones—Erroneous opinion of some naturalists, that the lava is not fluid, but of the consistence of paste—Composition of this lava—Observations on a lava of Vesuvius which flowed in 1785—Proofs that the shoerls and felspars found in the lava existed previously in the primordial rocks.

WHEN I arrived at Naples, on the 24th of July 1788, though Vesuvius was not in a state of inactivity, its conflagration was not sufficient to excite the curiosity of the Neapolitans; who, from having it continually before their eyes, are seldom inclined to visit it, but during its great and destructive eruptions. At that time, during the day, it without intermission sent forth smoke, which rising formed a white cloud round the summit, and, being driven by the north-east wind, extended in a long stream to the island of Capri. By night repeated eruptions of fire were visible, though no subterraneous explosions were to be heard at Naples; and a tract of ground to the south of the crater assumed a dusky red colour, which, by the experienced in volcanic phenomena, was said to be preparatory to the flowing of the lava. I should immediately have repaired to the place, had not my friends at Naples assured me, from the practical knowledge they had of their burning mountain, that that eruption, which at my arrival was but inconsiderable, would after some time become much more extensive. It was in fact my wish to see Vesuvius, if not raging with its most tremendous fury, at least in a more than ordinary commotion.

I, in consequence, returned from Sicily to Naples in the beginning of November, when a stream of lava, issuing from an aperture in the side of the mountain, covered a considerable extent of ground, and began to be visible before day-light, from beyond Capri, under the appearance of a streak of a reddish colour. On the 4th of the same month I began my journey to the volcano, and passed the night at the Hermitage del Salvatore, two miles from the summit of the mountain. Before I retired to rest, I passed several hours in making observations with the greatest attention; nor could the opportunity have been more favourable, as there was no moon, and the sky was perfectly free from clouds.

I had therefore a clear view of the eruptions of the mountain, which had the appearance of a red flame, that enlarged as it rose, continued a few seconds, and then disappeared.

peared. The ejections succeeded each other at unequal intervals of time; but no intermission continued longer than five minutes.

I rose four hours before day, and continued my journey towards the burning crater, from which, as I have before said, flames arose at intervals, which on a nearer approach appeared larger and more vivid; and every ejection was followed by a detonation, more or less loud, according to the quantity of burning matter ejected: a circumstance I did not notice before, on account of the distance, but which became more perceptible to the ear in proportion as I approached the mouth of the volcano; and I observed, when I had arrived within half a mile of it, in a direct line, that the ejections preceded their accompanying explosions only by an instant, which is agreeable to the laws of the propagation of light and sound. At this distance not only flames were visible to the eye, but a shower of ignited stones, which, in the stronger ejections, were thrown to a prodigious height, and thence fell on the declivities of the mountain, emitting a great quantity of vivid sparks, and bounding and rolling till they came within a short distance of the place where I stood. These stones, when I afterwards examined them, I found to be only particles of the lava, which had become solid in the air, and taken a globose form. These showers of lava appeared an invincible obstacle to my nearer approach to the volcanic furnace. I did not, however, lose all hope, being encouraged by the following observation. The showers of heated stones, I remarked, did not fall vertically, but all inclined a little to the west. I therefore removed to the east side of Vesuvius, where I could approach nearer to the burning mouth: but a wind suddenly springing up from the west, compelled me to remove, with no little regret, to a greater distance, as the smoke from the mouth of the crater, which before rose in a perpendicular column, was now drifted by the wind to the side on which I stood; so that I soon found myself enveloped in a cloud of smoke abounding with sulphureous vapours, and was obliged hastily to retire down the side of the mountain. Yet though I was thus disappointed of the pleasure of approaching nearer to the edge of the crater, and observing the eruptions more nearly and accurately, many instructive objects were not wanting. But before I proceed to any remarks on these, I must notice a curious and unexpected circumstance.

I have already spoken of the detonations which accompanied the showers of lava. It is now necessary to add, that these did not constantly accompany every eruption. When I had taken my station in the lower part of the mountain, I found the detonations more sensible, and resembling the noise produced by a large mine when it explodes; but suddenly, to my great surprize, they ceased, though the ejections of fiery matter continued both frequent and copious. I counted eighteen eruptions which were not accompanied by the smallest noise. The nineteenth, though not larger than the former, was followed by its detonation, as were eleven more, though others which succeeded were silent. This irregularity I observed so repeatedly, that the detonations appeared to me rather accidental than necessarily connected with the explosions. In this opinion I am supported by the authority of my ingenious friend, the Abbé Fortis who afterwards told me, at Naples, that he had frequently observed the same inconstancy in the eruptions of Vesuvius.

This peculiar phenomenon, which has not, to my knowledge, been remarked by any one of the numerous authors who have written on Vesuvius, does not appear, at first view, to be easily explicable from the physical cause of the explosions. As it must be allowed that the fire alone is not sufficient to produce it, we must have recourse to an elastic fluid, which disengages itself from the lava, impelling at the same time a part of it into the air; which effect can scarcely happen without a detonation. But on more
mature

mature reflection it appeared to me most probable that this takes place only within certain limits. When the elastic fluid bursts suddenly against the lava, it is to be expected that it will produce a considerable report; but when it acts slowly it will occasion little or none, though the ejection may be very strong. Thus; if the atmospheric air be confined between two pellets of tow in a tube, and one of them be forced suddenly towards the other, the latter will be projected to some distance, with a considerable sound, but none, or very little, will be heard if the pellet be gradually pressed towards the other. In like manner the air contained in an air gun produces scarcely any report on its discharge, on account of the interposition of the valve delaying its action on the ball.

In what I have said, however, I do not mean to assert that these volcanic eruptions were entirely unaccompanied with any explosive sound. It is highly probable they were not; but that I could not hear the feebler detonations on account of the distance.

It has been already said, that the liquid lava had opened itself a way, not immediately from the summit of the crater, but from one side of the mountain. The following are the observations made on this subject. Towards the south-east, at the distance of about half a mile from the crater, on a declivity, there arose sixty or more small columns of smoke, one of which was about nine feet in diameter, and came from a not very deep cavern. The ground from which these streams of smoke issued was tinged with yellow, from the muriate of ammoniac, and so hot, that even at some distance, I could bear my feet on it only for a few seconds. It is sufficiently manifest that the smoke and heat proceeded from the same cause; that is to say, from the subterraneous conflagration which communicated with that part, and caused the smoke to burst forth through the fissures in the ground.

At the distance of a few paces from this spot, the aperture was visible through which, six months before, the lava disgorged itself, as I was assured by my guide; but it no longer flowed at the time of my arrival, its current having acquired the hardness of stone. About fifty paces lower, however, in the same direction, that is towards the south, the lava was still running within a kind of pit, but without rising above its borders; and at a place still lower, about two miles from the principal crater of Vesuvius, the lava issued from the subterranean cavern, forming in the open air a long current. But before I proceed to describe the latter, it will be proper to notice the highly curious phenomena observable in the lava moving within the above-mentioned cavity or pit. This pit was of a shape approaching to an oval, about twenty three feet in circuit. The sides, or banks, were nearly perpendicular, about four feet and a half in height; and it was excavated in the hardened lava of the last eruption. The burning lava moved within this cavern, of which it covered the whole bottom, in the direction of from north to south. From it arose a cloud of smoke, which reflecting the light from the red hot lava, produced in the air a red brightness, that during the night might be seen at a considerable distance. But as this smoke was strongly impregnated with acid-sulphureous vapours, I found it a great obstacle to my making any observations on the liquid lava, when, from the calmness of the air, it ascended perpendicularly. But, from time to time, a slight breeze arose which carried the stream towards one side; and I then removed to the opposite, where I was no longer incommoded in my experiments by the vapour. During these favourable intervals, I could stoop down towards the pit, in which I observed the appearances which I here faithfully relate.

At the distance between the lower extremities of my body and the lava was only five feet, the heat it sent forth was very vehement, but not absolutely intolerable, though it forced me to remove from it a little, from time to time.

I observed

I observed then that the lava flowed, as I have before said, along this cavity, from the north to the south, and then disappeared under the excavated hardened lava. Its surface exhibited the redness of burning coal, but without the smallest appearance of flame. I know nothing to which it can be more properly compared than melted brass in a furnace. This superficies was in some places covered with a white froth; and from time to time bubbles arose in it, which burst a moment after with a sensible noise. Sometimes, likewise, the lava rose in small jets or spouts, which, in an instant after, subsided, and the surface again became smooth and even.

The nearness of my approach to this melted matter, which I observed, first, during the darkness of the night, and afterwards by the light of day, removed every shade of doubt or uncertainty respecting the remarks I made. It likewise furnished me with an opportunity to make some experiments which I otherwise could not have made. I was desirous to let fall some heavy body into the flowing lava; but my situation would only permit me to use, for this purpose, pieces of lava which lay round the cavern, as I could find no substance of any other kind. When I threw these pieces into the lava, they occasioned that dull kind of sound which would have been produced by striking soft earth or thick mud; and at the same time formed in the lava an incavation, in which they were buried about one third part of their bulk, and in this situation were carried away by the current. The same happened when I, at other times, used larger pieces and threw them forcibly into the lava; the only difference was that then they sunk in deeper.

From this experiment I ascertained the velocity of the lava, as it is certain that must have been the same with that of the stone carried by it. In about half a minute, the pieces of solid lava were carried ten feet and a half. The motion of the current was therefore very slow; which was not surprising, as the declivity was very little. We shall see presently, that the pieces of lava with which I made my experiment, were probably of the same kind with the lava which was flowing; on which account I, at first, expected that they would have sunk entirely within it, since it is well known that all bodies which pass from a fluid to a solid state become more compact; but a moment's reflection convinced me that the fact could happen no otherwise than it did. The pieces of lava which I threw into the current were full of pores and cavities, which in the liquid lava could not have place, or at least could not be so numerous; these pieces, therefore, must be lighter than the liquid lava. Another reason, which I consider as still more decisive, is derived from the tenacious liquidity of the flowing lava, which must prevent the entire immersion of the solid lava, though the latter should be specifically heavier. Thus I have observed that a solid globe of glass, though thrown with some force into a liquid mass of the same matter, will not remain entirely submerged, but float with a part above the surface.

I would willingly have made another experiment, which I should have considered as of much greater importance; but I had not with me the instruments necessary to undertake it; because I had not the least expectation that I should have been able to approach so near to the flowing lava as would have given me an opportunity to have used them.

The experiment I mean was to have ascertained the degree of absolute heat of the flowing lava, and might have been very conveniently made at this place. As therefore circumstances did not permit me to make a second visit to Vesuvius, and as these cavities which receive into them the flowing lava are frequently met with in volcanic eruptions, it may not be improper here to detail the nature and mode of the experiments I would have made, had I been furnished with the necessary means, in hope that some similar

similar opportunity may induce some one of the few naturalists of Naples who are desirous to enlarge the knowledge we have of their volcano, to carry them into effect.

First, therefore, I would have let fall on the lava within that cavity two kinds of substances, inflammable and fusible, contriving some means to keep them fixed in the same place; punctually noticing the time required for the inflaming of the former and the fusion of the latter. I would then have exposed the same substances to our common fires, until the same effects had been produced, observing the difference of time between the production of the effect by the volcanic fire and the common. I should thus have obtained a term of comparison of great utility in the inquiry proposed. But a method more precise and certain, would be to make use of the pyrometer of Mr. Wedgwood*; which should be used in the following manner; to ascertain the absolute heat of the superficies of the lava, one or more of the cylinders of clay should be let down upon it, inclosed in the box of the same earth adapted to them, fastened to an iron chain that it may not be carried away by the current, and the experiment prevented. This being taken up, after having been suffered to remain there some hours, the shortening of the cylinders would shew the quantity of absolute heat they had suffered, and, consequently, that of the lava on which they had rested.

But with this experiment alone I should not have been entirely satisfied. By the assistance of this same pyrometer, I would have endeavoured to discover the internal absolute heat of the lava, by immersing within it some of the cylinders I have before mentioned, inclosed in a thick hollow globe of iron, fastened to a chain of the same metal. The infusibility of iron in our common furnaces inclines me to believe that it would resist the heat of the liquid lava; but should it not, its melting would supply the place of a pyrometer, and sufficiently prove the violence of the heat.

I am aware that these experiments would not ascertain, with precision, the heat of other torrents of lava, which must necessarily depend on the greater or less depth of the ignited matter, its distance from the principal seat of the conflagration, and the different qualities of the lava. But they must have been of considerable importance, and I can never sufficiently regret not having had it in my power to make them.

It may, perhaps, be doubted whether the globe of iron I have mentioned could be made to penetrate through the tenacious superficies of the lava: but there seems little reason for this doubt, when we consider that the pieces of porous lava, which are far lighter than this metal, penetrated it to one third of their bulk. And though it should not be able to divide that part of the superficies which, by being in contact with the air, has less liquidity; that might be separated by other means, and the globe immediately plunged into the more fluid part of the lava.

I do not deny but that these and other similar experiments are difficult, offensive, and, in some degree even dangerous; but what experiment can be undertaken perfectly free from inconvenience, and all fear of danger, on mountains which vomit forth fire? I would certainly advise the philosopher who wishes always to make his observations entirely at his ease, and without risk, never to visit volcanoes.

But it is time to continue my narrative of the phenomena I observed in this eruption of Vesuvius. Though the lava issued at its origin from only a narrow aperture, the stream of it became considerably enlarged as it descended the declivity of the mountain, and formed other smaller torrents: but at about the space of a mile from the mouth whence it issued, its superficies had acquired the solidity of stone. I endeavoured to pass over this, notwithstanding the difficulty of walking on it, as it was en-

* See the Introduction.

tirely composed of small disjointed scorize, on which the foot could not rest with firmness, and so hot that I was obliged to change my shoes, those I had being worn out, and half-burnt.

Besides two other pits, similar to that I have described, and some burning orifices in which, when I looked into them, I could perceive the liquid lava resembling melted glass in a furnace when it burns with the utmost violence; I observed, likewise, the traces of the course which the lava had taken or resumed. Here the channels through which it had flowed remained, but empty; there some residue of it was to be seen; and others were full of it. One had the form of a cylindric tube, and another that of a parallelopiped. But the direction of all these channels through which the lava had flowed was towards the south. It did not require much attention to perceive, that under the solid lava on which I walked the fluid was still running; the low but distinct sound it occasioned in its passage was clearly perceptible to the ear.

A sufficient illustration of what I mean may be given from what frequently happens, in winter to many slow streams, in the northern parts of Italy. In these, when the winter is severe, the superficies of the water at first adheres to the banks, and afterwards congeals in the middle, forming a crust of ice which increases in thickness, from night to night, while the water, which is still fluid, if there is sufficient depth, continues to run under it; though the thickness of the ice increases, till after some days it is sufficiently strong to bear men to walk on it, or even greater weights. If any person should then go upon it, and apply his ear close to it, he would hear the sound of the water running under, as I have several times experienced in the vicinity of Pavia. This sound appears to me to be precisely the same with that occasioned by the Vesuvian lava flowing under the solid lava, and proceeds doubtless from the same cause; I mean the obstacles the fluids meet with and strike against in their passage; as the cause of congelation is likewise the same in both, that is, the privation or rather the diminution of their absolute heat.

Pursuing my way to the south, along the declivity of the mountain, I arrived at the part where the lava ran above the ground. Where the stream was broadest, it was twenty-two feet in breadth, and eighteen where narrowest. The length of this torrent was two miles, or nearly so. This stream of lava when compared with others which have flowed from Vesuvius, and extended to the distance of five or six miles, with a proportionate breadth, must certainly suffer in the comparison; but considered in itself, and especially by a person unaccustomed to such scenes, it cannot but astonish and most powerfully affect the mind. When I travelled in Switzerland, the impression made upon me by the Glaciers was, I confess, great; to see in the midst of summer immense mountains of ice and snow, placed on enormous rocks, and to find myself shake with cold, wrapped up in my pelisse on their frozen cliffs, while in the plain below Nature appeared languid with the extreme heat. But much more forcibly was I affected at the sight of this torrent of lava, which resembled a river of fire. It issued from an aperture excavated in the congealed lava, and took its course towards the south. For thirty or forty paces from its source, it had a red colour, but less ardent than that of the lava which flowed within the cavern I have mentioned above. Through this whole space its surface was filled with tumours which momentarily arose and disappeared. I was able to approach it to within the distance of ten feet; but the heat I felt was extremely great, and almost insupportable, when the air, put in motion, crossed the lava, and blew upon me. When I threw into the torrent pieces of the hardened lava, they left a very slight hollow trace. The sound they produced was like that of one stone striking against another; and they swam following the motion of the stream. The torrent at

first descended down an inclined plain which made an angle of about 45 degrees with the horizon, flowing at the rate of eighteen feet in a minute; but at about the distance of thirty or forty paces from its source, its superficies, cleared from the tumours I have before mentioned, shewed only large flakes of the substance of the lava, of an extremely dull red, which, clashing together, produced a confused sound, and were borne along by the current under them.

Observing these phenomena with attention, I perceived the cause of this diversity of appearance. The lava, when it issued from the subterranean caverns, began, from the impression of the cold air, to lose its fluidity, so that it yielded less to the stroke of solid bodies. The loss of this principle, however, was not such as to prevent the superficies from flowing. But at length it diminished by the increasing induration; and then, the superficial part of the lava, by the unequal adhesion of its parts, was separated into flakes, which would have remained motionless had they not been borne away by the subjacent matter, which still remained fluid, on account of its not being exposed to the immediate action of the air, in the same manner as water carries on its surface floating flakes of ice.

Proceeding further, I perceived that the stream was covered, not only with these flakes, but with a great quantity of scoræ; and the whole mass of these floating matters was carried away by the fluid lava, with unequal velocity, which was small where the declivity was slight, but considerable when it was great. In one place, for ten or twelve feet, the descent was so steep that it differed but little from a perpendicular: The lava must therefore be expected there to form a cataract. This it in fact did, and no sight could be more curious. When it arrived at the brow of this descent, it fell headlong, forming a large liquid sheet of a pale red, which dashed with a loud noise on the ground below, where the torrent continued its course.

It appeared to me that it might be expected that, where the channel was narrow, the velocity of the torrent must be increased, and where it was capacious diminished; but I observed that, in proportion as it removed from its source, its progressive motion became slower: and the reason for this is extremely obvious; since the current of melted matter being continually exposed to the cold air, must continually lose some portion of its heat, and, consequently, of its fluidity.

At length the lava, after having continued its course about two miles, along the declivity of the mountain, stopped, and formed a kind of small lake, but solid, at least on the superficies. Here the fiery redness disappeared; but about two hundred feet higher it was still visible, and more apparent still nearer to its source. From the whole of this lake strong sulphureous fumes arose, which were likewise to be observed at the sides where the lava had ceased to flow, but still retained a considerable degree of heat.

After having written these observations on the lava ejected by Vesuvius, as it appeared from its source to its termination, which I made in company with Dr. Comi Abruzzese, a young student of great promise in medical and physical science, I had an opportunity to read the accounts of former eruptions, as they have been given by men of great abilities, who had observed them on the spot, I mean Dr. Serao, Father Della Torre, M. Deluc, and Sir William Hamilton. I perceive that in the principal facts, the phenomena I have observed agree with their observations, and that the differences are but few. Thus the torrents of lava which they have described were accompanied with great fumes, and covered with pieces of lava and scoræ. In like manner the liquid lava received but small impressions from the stroke of solid bodies, and sometimes none. Serao informs us, that the lava of 1737, when struck on the surface

with long pointed staves, was found to be so hard that it refounded. According to the observation of Father Della Torre, the thick lava of the eruption of 1754, when raised with long poles, split into pieces. M. Deluc shewed me, some years since, in his private cabinet of natural history, at Geneva, a piece of Vesuvian lava, of the eruption of 1758, marked with a slight impression, which he made on it, on the spot, while it retained its softness. If this naturalist should ever chance to come to Pavia I could shew him, in return, in the public Imperial Museum, among the collection of volcanic productions which I have made, a cylinder of lava, eighteen inches long, and five and a half thick; which, in one part, has been bent to an angle, while it was half liquid, by the hands of the guide who accompanied me when I visited the eruption I have above described. In the eruption of 1766, likewise, though the lava flowed with surprising velocity, we are told by Sir William Hamilton, that it received but a very slight impression from some large stones that he threw into it. Father Della Torre has also remarked another phenomenon which I observed, and have described, relative to the effervescence and tumors of the fluid lava.

But my meeting with the subterranean cavity in which the lava flowed, was a fortunate and singular circumstance, which is not, that I know of, mentioned by any one else, because probably it was not seen; since all the descriptions of eruptions which we have, relate solely to currents of lava running over the surface of the ground, exposed to the free action of the air; from the effect of which the lava must soon cool and harden; as appears from the very slight impression made by stones thrown into it, according to all the accounts I have cited, and my own observations. But the narrowness of this cavern, and in some measure its depth, prevented this action of the air; whence I was enabled to observe the lava in a state in which it cannot be seen above the ground, still retaining a great part of its fluidity, as appeared from its from time to time spouting into the air, and from the impressions made on it by the pieces of lava thrown into it. It cannot, therefore, be doubted but it had a much greater degree of fluidity when it boiled up in the Vesuvian furnace; as it must then have been penetrated with a greater quantity of absolute heat, by the action of which its parts must have been more disjoined and separated, and therefore have possessed a greater degree of fluidity and mobility. But I shall adduce still stronger reasons to prove the great fluidity of the lava, when it foams and boils up in its craters, when I come to speak of the volcano of Stromboli. I dwell the longer on this subject, because I know some have denied that the lava is ever fluid, asserting, that it has only the consistence of paste moistened with a good deal of water, and descends down any declivity in consequence of its gravity.

To complete the observations I have made on this eruption, nothing appears to remain but to speak of the quality of the ejected lava. On this I made different experiments, all of which, some extrinsic or accidental circumstances excepted, furnished the same results. The base of the lava is of horn-stone rock, of a dark-grey colour, of moderate hardness, dry to the touch, where it has been fresh broken somewhat earthy, and gives some sparks with the steel. This lava put the magnetic needle in motion at the distance of three lines and a half, or somewhat more than a quarter of an inch.

It is well known to volcanic naturalists, that many of the lavas of Vesuvius contain colourless garnets. In that of which I treat, they were found very numerous, though very small. When broken, they appeared glassy; and sometimes a kind of side or face was visible, though without its being possible to determine the quality of the crystallization, not so much from their smallness as from their being too intimately incorporated with their tenacious matrix. With the garnets were united a number of shoerls, of the colour and lustre of asphaltum, vitreous crystallized in faces, the largest of which was

nearly five lines. Those which were found in the running lava had received no injury from the fire; but those in the globes ejected from the crater in that eruption, were in a state of beginning fusion.

The fire of the furnace changed this lava into a kind of enamel, full of bubbles, of the colour of pitch, shining, which gave sparks with steel, and adhered strongly to the sides of the crucible*. The shoerls melted, but the garnets did not; they only became whitish, but without entirely losing their vitreous appearance.

After having made my observations on the phenomena exhibited by the stream of lava then running, I proceeded to examine the vestiges of others which had flowed some time before; one of which, in November 1785, had issued at about one third of a mile from its crater, on the side of Monte Somma. As I do not know that any notice has yet been taken of it by others, I shall relate the observations I made as I passed over the remains of it, and likewise the information given me concerning it by my guide, and some persons who cultivate the study of Natural History, who had observed it on the spot at the time of its eruption:

Although at its source it was but narrow (as generally happens to these streams of lava,) it afterwards became considerably enlarged, and did not form small, disjointed, and rugged pieces like the others I have described; but large masses, many feet in breadth and depth, and separated by numerous fissures. Its superficies presented an appearance not a little curious. It was rugged and irregular, from an immense number of small cylindric bodies resembling twisted cords, and which were only the lava itself reduced into striated and contorted fibres, when near the end of its course, and ready to congeal. In its qualities it did not appear to me to differ from the other Vesuvian lava I had already examined, either in its base or the garnets and shoerls which it contained.

The greater part of this lava lies in a valley under Massa, and on one side of Salvatore. Before it arrived there, it must have fallen from a high rock, and consequently formed a cataract, which, when seen by night, I was told, exhibited a most wonderful spectacle to the eyes of beholders. But though its fall through the air must have been very considerable, and it must in consequence have lost much of its heat, when it reached the ground it continued still to flow for a considerable space. On the side of Massa, I observed that it had approached within ten or twelve feet of some oaks which grew on the side of a precipice. Some of them appeared entirely withered; others preserved their verdure only on that side of the trunk and branches which was opposite to that next the lava. In its passage it did such damage to a small church called *Madonna della Vetrana*, that it has ever since remained deserted. The fiery torrent took it in front, and broke down the wall, which indeed required no great force, as it was built with soft stones of tufa brought from the neighbouring mountains of Massa, and much like that of Naples. Thence it penetrated into the church, and having destroyed the door on the opposite side, and beat down a part of the wall, continued its course, through the church, within which it was observed to flow with greater velocity than the rest of the surrounding lava, from being confined by the walls on the sides. With this lava the floor of the edifice still continues covered, and the contiguous sacristy partly filled; while large pieces of the broken wall, which the torrent had carried away, lie at more than eighty

* To avoid repetitions, I shall here mention, that, when I use the word *furnace* without any other addition, I always mean the furnace of a glass-house; and that by the term *enamel*, I understand, with the generality of our chemists, a substance produced by heat, resembling glass, but without its transparency. It may also be proper to add, that, as often as an entire fusion of the lava took place in the crucibles, it adhered strongly to the sides.

feet distance from the church, in the middle of the hardened lava. — Some linden trees are likewise to be seen surrounded by the same, the trunks of which are blackened and burnt. The lava, as I was assured, continued to flow fifteen months; and when I visited the place, which was ten months after it had ceased to flow, it was still warm, and emitted thin fumes.

On one side of Vesuvius, about a mile below Salvatore, is a spacious cavern, which widens as we descend into it, called the *Fossa Grande*. I took this way to return to Naples, and gained from it considerable and useful information. It is well known what doubts have been entertained relative to the shoerls and felspars which are usually found, either conjointly or separately, in the lavas; I mean whether they have been formed within them, either while they were fluid, or at the time of their congelation; or whether they existed in the original rock before the fire changed it into lava. Bergman has stated the arguments on each side, but has left the controversy undecided. It is true, that, when that chemist wrote on volcanic productions, the opinion was, with good reason, most prevalent, which supposes that the shoerls and felspars existed originally in the primordial rocks. This hypothesis has received considerable support from the pieces of rock anciently thrown out of Vesuvius, which are to be found on the surface of the ground; or by searching and digging in the tufaceous matters of the *Fossa Grande*.

But it is necessary to proceed to particulars. One species of these rocks is of a mar-
gaceous nature, the carbonate of lime however prevailing. As this did not appear to be at all calcined, but unchanged, and similar to stones of the same kind which are not volcanic, it afforded a convincing proof that these rocks have received no sensible injury from the fire; but if we break some of these, we shall find in them numbers of felspars, which, in their crystallization, and other exterior characters, extremely resemble many of those we meet with in some lavas of Vesuvius, and other neighbouring volcanic places. Still more numerous also are the shoerls of a shining black; some of the shape of needles, and others of prisms, and varying in their size; some being so small as to be scarcely visible, and others of the length of seven lines, or above half an inch, and broad in proportion. These pieces of rock do not form veins, strata, or great masses, but are distributed in different places in scattered fragments.

Here likewise we find various pieces of granite, not in the least injured by the fire; the quartz of which, besides mica, is accompanied by felspars and shoerls, which in no respect differ from the volcanic shoerls and felspars.

I might have considerably extended these remarks on the species of rock thrown out by the Vesuvian fires without receiving injury or change; but I think that what I have said will be sufficient to shew, that, in order to account for the presence of felspars and shoerls in lava, and their various crystallizations, it is not necessary to suppose them formed within it, either when it was fluid, or at the time of its congelation; since we meet with similar vitreous bodies in the substances from which it derives its origin.

CHAP. II.—THE GROTTO OF POSILIPO.—SOLFATARA.—THE PISCIARELLI.

The city of Naples founded on volcanic substances.—Different opinions relative to the origin of volcanic tufas.—Those of Posilipo appear to have been formed by thick eruptions.—Lavas on the road to Solfatara described.—Specular iron found in one of these.—Solfatara is not an isolated mountain, as has been supposed by some.—Sulphures of iron (or pyrites) lavas of Solfatara, and the Pisciarelli.—Observations on the decomposition of lava, and the shoerls and felspars which are found within it; as also on the sulphureous-acid fumes which incessantly exhale from this volcano.—Conjecture that Solfatara has arisen out of the sea.—Method lately employed to extract, more abundantly than formerly, alum and sal ammoniac from this volcano.—Critical disquisition relative to a curious phenomenon in the vicinity of Solfatara, from which M. Ferber conjectures that the level of the sea has there sunk nine feet.

DURING my stay at Naples, I determined to visit the other principal Phlegrean fields, as well as Vesuvius, and I had the good fortune to meet with, and have for a companion, the Abbé Breislak, formerly professor of philosophy at Rome, and of mathematics in the Nazarene College; and now director of Solfatara, near Pozzuolo.

The beautiful city of Naples is entirely founded on volcanic substances. Among these the tufa predominates, which has also contributed not a little to the materials of many buildings. To the north and west it is accumulated in large heaps, and forms spacious hills. A philosophical stranger, on his arrival in this country, when he views these immense masses of a substance which must excite in his mind the idea of fire, cannot but feel astonishment, and enquire with a kind of serious thoughtfulness, what has been their origin. It is known that on this subject naturalists are divided. Some conjecture that the volcanic tufa was generated within the sea when it bathed the foot of the burning mountains; others suppose that the cinders ejected by the fire have, in a long course of years, been hardened into this species of stone by the filtration of rain water; lastly, others incline to think that the tufa derives its origin from the slimy and fluid substances thrown out by the volcanos in some of their eruptions.

The diversity of volcanic tufas has perhaps been the cause of these different opinions, each of which may possibly be true with respect to different kinds of tufa. Those, however, which are found in the vicinity of Naples are probably the produce of thick eruptions, as we may conclude from the curious discovery of Sir William Hamilton, who, in digging up in the tufa which had covered Herculaneum, the head of an ancient statue, observed that the perfect impression of the head was visible in the tufa, which cannot be supposed to have happened but by its having enveloped the statue in a liquid or molst state.

To the observation of Sir William let me be permitted to add one of my own, which I made in the grotto of Posilipo. It is well known that this grotto has been excavated within the tufa, and serves as a public road from Naples to Pozzuolo. This tufa, which is of a clear grey, has for its base an earth in part argillaceous, of a slight hardness, which contains vitreous flakes, pieces of felspars and fragments of yellowish pumice-stone, which by the changes it has undergone has become extremely friable, and almost reducible to powder. This tufa has been in some measure analysed by the excavation made in it by art, which furnishes a proof of the nature of its origin. For if any person,
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in the summer time, enters the grotto about the rising of the sun, since at other times of the day there is not sufficient light, the solar rays, shining on the entrance which looks towards Naples, will sufficiently illuminate the roof and sides to shew layers or lakes, similar to those which may be observed on the steep sides of mountains, or in perpendicular sections of the earth, in low places, where sediments of various kinds of lime have been formed by the inundations of the rivers. It seems, however, impossible to doubt that this accumulation of tufa, through the midst of which the Romans opened that long and spacious grotto, has been produced by the thick eruptions which have frequently issued from volcanos, and which, heaping up one upon another, have hardened in time into this tufaceous stone; since both Vesuvius and Etna furnish sufficient examples of such eruptions. And as in many other tufas in the vicinity I have observed a similar construction, I cannot suppose their origin to have been different.

Coming out of this subterraneous passage, and proceeding towards Solfatara, I observed, on the right hand side of the road, a ridge of lava, nearly parallel with it, which had every appearance of having been thrown out of the volcano when burning, both because it was extremely near to it, and had its highest part in that direction. Its thickness exceeded five-and-thirty feet, and it was situated between two layers of tufa, one above and the other below. It formed a high rock, perpendicular to one side of the road. A number of labourers were continually employed in separating pieces of this lava with pickaxes, or other instruments proper for such work. It is compact, heavy, somewhat vitreous, gives sparks with steel, and appeared to me to have for its base the petrosilex. Incorporated with it are found shoerls and felspars. The former are shining, of a dark violet colour, in shape rectangular needles, vitreous, in length from the sixth of a line to two lines: it besides contains a considerable quantity of others which have no regular form. But the felspars are more conspicuous than the shoerls, both from their larger size and greater number. They are in general of a flat rhomboidal form, and consist of an aggregate of small white lamellæ, duly transparent, brilliant, marked with longitudinal streaks parallel to each other, closely adhering together, but easily separated by the hammer, giving sparks with steel more readily than the lava; and, in the full light of day, exhibiting that changing colour which usually accompanies this stone. The largest are ten lines long and six broad, and the smallest exceed one line. The shoerls are also found in the lava, in the same manner, and are so fixed in it, that they occupy nearly the half of it. It is impossible to extricate them entire. They are distributed within it without any order, and frequently cross and intersect each other at right angles.

In some situations of this lava, which are more than others exposed to the inclemency of the air and seasons, the felspars are visible on the superficies, by a mixture of emerald and purple, probably occasioned by the action of the atmosphere, as from the same cause some volcanic vitrifications acquire externally their peculiar colour.

This lava has not equal solidity throughout, being in some places porous, or rather cavernous; and, in some of its varieties, it was remarkable, that it abounded with specular iron. This was found in very thin leaves, for the most part, closely connected together. These are extremely friable; and the finger being passed over them, they adhere to it like particles of mica. But their small size, which in the largest is scarcely a line, renders it necessary to make use of a lens to examine them properly; by the aid of which we shall find that they are of very different shapes, have the lustre of burnished steel, and that many of them appear to be aggregate of small thin scales, closely united.

This iron acts on the magnetic needle, at the distance of two lines. Like many other irons exposed to the air, it has acquired polarity; attracting the needle on one side, and repelling it on the other.

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When we extract these thin scales of iron from the lava, and examine them with the lens, there frequently appear, intermingled with them, various fragments of microscopic transparent prisms, which I at first thought to be shoërls or felspars, but which afterwards I rather conceived to be zeolites, as they exhibited the appearance of radii diverging from their centre; but their extreme minuteness rendered it impossible accurately to ascertain their species.

Proceeding along the road to Solfatara, we find on the left hand a natural ridge of rock, formed of a very light lava, the base of which is horn-stone, of the colour of blue baked brick, of a coarse earthy grain, which attaches slightly to the tongue, and gives an argillaceous scent on wetting it, or even merely moistening it with the breath*.

It is very probable that this lava has been decomposed, and that the decomposition has penetrated to the felspars with which it abounds, as they are become very friable, though they in general still retain their natural brilliancy.

Having made these cursory observations, I proceeded to Solfatara: nor did I satisfy myself with one visit only, but repeated it several days; being extremely desirous carefully to examine, and gain every information relative to a place so celebrated.

From reading the notes of M. Dietrich to M. Ferber's Travels in Italy, I had been induced to imagine that Solfatara was a mountain isolated on every side†; but the truth is, it is connected with the other neighbouring mountains, with which it forms an uninterrupted chain of considerable extent.

It would be but of little utility for me to describe at length the form, extent, and circuit of this Phlegrean field; the various qualities of the hot vapours which exhale from it; or the hollow noise which is heard on striking the ground in various parts of it; not that these circumstances were not carefully examined by me; or that I think them unworthy of my narrative; but because it appears to me unnecessary to enlarge on them, as they have been already repeatedly described by a great number of travellers. It will, in my opinion, be more agreeable to the naturalist to proceed to a minute examination of the principal productions of this yet unextinguished volcano, as they have hitherto been, for the most part, either unobserved, or passed over in silence.

In the obscurity and uncertainty in which we find ourselves, relative to the causes productive of subterraneous conflagrations, the spontaneous inflammation of sulphures of iron (or pyrites) has been considered as one of the most probable. The well-known experiment of Lemery, by which a similar conflagration is produced by mixing filings of iron with powdered sulphur properly moistened, has given great support to this opinion. But sulphures of iron, in volcanic countries, are less frequent than has been supposed. This has been clearly proved by the accurate observations of mineralogists who have written on them. And though Sir William Hamilton expressly affirms that both Etna and Vesuvius abound with them‡, it is now well known that he mistook the shoërls for sulphures of iron (or pyrites), from want of mineralogical knowledge. In fact, Signior Dolomieu, in his *Catologo Ragionato de' Prodotti dell' Etna*, mentions only one single piece of lava as containing sulphur of iron: and the Chevalier Gioeni, in his *Litologia Vesuviana*, has never noticed any such production. In Vulcano and Stromboli, two islands which are in a state of actual conflagration, I could trace no vestiges of such

* In many lavas the scent of clay is perceived, on moistening them with the breath, or by other means: whenever, therefore, I may hereafter mention the argillaceous scent of lava I always understand it to have been subjected to this humectation, though I omit to mention it, to avoid prolixity.

† “La Solfatara représente encore aujourd'hui une montagne assez élevée et isolée de tous côtés.” — *Lettres sur la Minéralogie, &c. d'Italie, &c.*

‡ Both these mountains abound with pyrites. — *Campi Phlegrei.*

fulphures, as will be remarked in the proper place. As the same kind of substance, therefore, is found diffused in several parts of Solfatara, I think it well deserves that we should carefully consider it, and the bodies with which it is found united.

I. The stones which I here undertake to describe are principally found in the interior sides of Solfatara. The first I shall mention exhibits, both externally and internally, a number of shining particles, which, when examined by the lens, appear to be small aggregates of sulphure of iron, some crystallized in cubes, others in globes, and others in irregular figures. When the flame of the blow-pipe is applied to them, they begin to lose their yellow colour, which quickly, in consequence of their destruction, entirely disappears; when an odour slightly sulphureous is emitted.

This substance is a lava, the base of which is horn-stone; in part decomposed, light, friable, granulous, and of a cinereous colour.

II. The small sulphures of iron in this second lava are less numerous, but in their qualities very analogous to that already described; except that they are less decomposed, and less friable.

III. The appearances exhibited by this lava are two. The external part is extremely white, and so decomposed, that the slightest blow reduces it to powder; we likewise find in it some of the external characters of ordinary clay. It tenaciously adheres to the inside of the lip; is soft to the touch, and becomes still more so when slightly moistened. It absorbs water greedily, and with a kind of hissing noise; but is not reducible to a lubricious paste, as clay is. But the internal part of this lava, besides being of a grey colour, is three-fourths heavier, and in its compactness and its grain, approaches to that species of calcareous earth, called *calcareus aquabilis*, though in fact it only resembles it in appearance, not being reduced to calx by fire, nor dissolved by acids. In this lava the sulphure of iron is not found in cubes, or globes, but in thin lamellæ; and is dispersed throughout its whole substance, especially in certain parts, where the colour of the stone inclines to black, and has a greater consistency. No sign of this mineral appears in the white decomposed lava, probably because it was destroyed gradually, in proportion as the decomposition took place.

IV. This lava is much heavier than the three preceding; which, no doubt, arises from the greater abundance of sulphure of iron that it contains. The shining particles of this mineral are principally to be seen in the vacuities, (of which, however, it has not many.) They are polyhedrous, but the number of their faces is not constant. When exposed to the fire it loses its brassy colour, burns with a thin blue flame, and emits a strong smell of sulphur. The lava which contains it, and which is of a livid grey colour, is, in some situations, so soft that it may be scratched with the nail, but in others much harder, and some of it will give sparks with steel. In this lava, the base of which appeared to me to be horn-stone, we find crystallized felspars, but decomposed, though less so than the lava in which they are inclosed.

V. Around the extensive plain of Solfatara, we observe in several places a circular ridge of steep rocks, which once formed the upper sides of this enormous crater. The rain-water, descending this declivity, over the decomposed lava, carries down with it the more minute parts to the lower grounds, where various concretions are produced, especially those stalactites which are commonly called *oolithes*, or *pisolithes*. But of these stalactites we shall speak hereafter. Here we shall only notice, that this water in its descent carries down with it small pieces of decomposed lava, and that in some places many of these pieces are found united, and bound together by a crust of sulphure of iron. It is black where it is exposed to the immediate action of the air, but in the fractures of a shining appearance, though the colour inclines more to a lead colour than to yellow.

yellow. Its structure is scaly. The sulphures of iron which have before been mentioned give fire with steel; but this does not, from want of sufficient hardness. It abounds with sulphur; since, being exposed to the flame of the blow-pipe, it visibly melts, and, the activity of the fire being increased, a blue flame arises, which continues till the crust is consumed, nothing remaining but a very small quantity of a white pulverous earth, which is no other than a portion of decomposed lava, that had been united with this sulphur.

With this sulphur, the presence of which is extremely manifest from its strong smell, is also united arsenic; as sufficiently appears from the white fumes which arise from the combustion of the sulphure of iron, and which emit a very sensible odour of garlic.

These are the volcanic matters which, at Solfatara, abound more or less with sulphures of iron. But whence is their origin? It is well known they are formed by the combination of sulphur with iron. With the former this volcano abounds, whence it obtained the name of Solfatara; and as the latter is almost always found mixed with volcanic productions, which commonly derive from it their varying colours, we have thus the two proximate principles of sulphure of iron. But is their combination effected by the dry, or, as is more probable, by the humid way? I find it difficult to conceive how it can take place by the first method, on account of the speedy dissipation of the sulphur sublimed by fire, which must prevent its uniting with the iron to form these sulphures. It appears to me more probable that they have been formed by the action of water, which having penetrated the lava the sulphur, dissolving in the fluid, has combined with the iron. But as such solutions of sulphur in water seldom take place, as Bergman has observed, we rarely find sulphures of iron in volcanized countries, notwithstanding the existence of these two minerals.

But let us continue the description of the productions of this celebrated place, the greater part of which are decomposed lavas; though this decomposition, notwithstanding it has been noticed by several writers, has not, to my knowledge, been examined by any one with requisite care and attention.

VI. This lava is coloured on the upper part with a covering of yellow oxyde of iron, under which is a white decomposed stratum, to which corresponds another lower one of a cinereous colour, where the lava is much less changed. These two strata form a very strong contrast. The white may be cut with a knife, in some places more easily and in some less; adheres to the tongue, does not give sparks with steel, feels soft to the wet finger passed over it, has considerable lightness, and being struck with a hammer gives a dull sound, like earth moderately hardened. On the contrary, the cinereous stratum sounds, when struck with a hammer, like a hard stone, of which it also has the weight; is rough to the touch, scarcely at all adheres to the tongue, gives fire with steel, and cannot be cut with the knife. The white stratum in some places is an inch thick, and in others more, but there are likewise places where it is only a few lines in thickness. The white stratum in general changes insensibly into the cinereous, but in some places the separation is sudden and abrupt.

The felspars in this lava (for of these it is full) are prisms, the largest of which are ten lines in length, and the smallest the sixth of a line. In the cinereous stratum, notwithstanding a beginning decomposition may be perceived, the felspars are unimpaired. On the contrary, in the more decomposed stratum, I mean the white, their decomposition is very apparent; they have all lost their transparency, though many of them still retain their splendour. Others have acquired a resemblance to a sulphate of lime that has remained some time in the fire; to which they might likewise be compared in softness, had they a little less consistence. Some of them are infixed in that part of the lava,

lava, the colour of which is between the cinereous and white, and here we find them less changed than in the stratum which is entirely white. Others have one part of them in the white, and the other in the cinereous stratum; in which case we find the part fixed in the latter stratum to have suffered nothing, but that in the former considerably. In short, from the inspection of this lava it is manifest, that, in proportion as the nature of it is changed, the felspars it contains undergo a change, except when the principle producing the alteration is unable to affect them. Besides these felspars, we find, incorporated with the lava, a number of very small and almost invisible black shoerls, which are not distinguishable where the lava is white; less, perhaps, because they do not exist, than because they have lost their colour in consequence of the decomposition.

This lava, which is of a margaceous base, does not liquify in the furnace, when its decomposition is considerable, but other parts of it, which have been less decomposed, are reduced to a kind of frit.

VII. Solfatara, perhaps, does not afford a lava more compact, hard, heavy, or of finer grain than this. Its composition is siliceous, its colour grey, it gives sparks strongly with steel, and, at the distance of two lines, attracts the magnetic needle. Its base is of the petrosilex, and it contains within it different felspars and shoerls; but some of the latter have been melted by the fire, as appears from the bubbles or speckles occasioned by the liquefaction. This lava is covered with a very white crust, nearly an inch thick, produced by the decomposition it has undergone. The effects of the furnace on this lava are nearly the same with those on the lava No. VI.

VIII. This lava is entirely decomposed. On the surface, and for some depth, it is white, and almost pulverous; but in the internal part the white colour changes into a reddish blue, and acquires a degree of hardness, though not too great to be cut with a knife. The felspars, in which it abounds, have suffered different degrees of decomposition. Some of them, besides being calcined, attach strongly to the tongue. Others, when viewed with a common lens, appear full of filaments, but when examined with a deeper magnifier, these filaments appear to be no other than extremely thin, striated, and very friable laminæ. This production is infusible in the furnace.

IX. The felspars in this lava occupy more than one third of its mass. They are in shape flat prisms, and, except having somewhat less hardness, retain all the qualities which characterize the species of stone to which they belong. There are also a number of shoerls, which, from their extreme minuteness, appear like points, but are easily distinguishable, by their black colour from the lava, which is whitish, and has greater consistence than that of No. VIII. It is likewise heavier; to which the quantity of felspars but little changed, which it contains, undoubtedly contributes.

X. The shoerls which make so great a part of the other kinds of lava, are found so strongly adherent to them, that we usually can only separate them in fragments. The present lava, in this respect, offers an exception which may be considered as commendatory of it. It has acquired so great a degree of softness by its decomposition, that the numerous shoerls it contains may be detached from it entire. They are hexagonal prisms, truncated perpendicular to their axes, the faces of which are slightly striated lengthwise, and their colour is a yellowish black.

In this lava, the base of which appeared to me of horn-stone, another more remarkable peculiarity presents itself. On breaking it, the fractures discover a number of small caverns, jewelled, if I may employ the term, with a multitude of extremely minute shoerls, of different colours, some green, some yellow, others of a dark chestnut, but all similar, being hexagonal prisms, with rhomboidal faces, and each terminating in a dihedrous pyramid. Their angles are regular, their faces shining, and in part trans-

hence follow that this lava will be changed into an argillaceous substance, as the above mentioned Swedish philosopher would have us believe ; since, from a chymical analysis, it appears that an earth of that kind, combined with other principles, pre-existed in it, and has only been rendered manifest by the diminution of aggregation produced by the before-mentioned vapours.

It is likewise not strictly true that the walls, or inclosing sides, of Solfatara are every where white and decomposed, as we might infer from the description of M. Ferber.

Those which look toward the south, indeed are so, but not those which are situated in another direction, and especially those which front the north, which are of a blackish colour, and little, or not at all, decomposed. The Abbé Breislak, Director of Solfatara, who accompanied me when I made my observations, suggested a very probable reason for this diversity of appearance in the different sides, observing that the sulphureous acid is less powerful to effect the decomposition of lava, and requires longer time, when the lava has considerable humidity ; which humidity must be much less on the southern side, where the heat of the sun is greatest. In fact, he exposed a piece of solid lava, to a very humid sulphureous exhalation, at Solfatara, during two months, without producing in it the least decomposition.

II. The observations I have made convince me that the alterations here described always take place in the upper part of the lava ; and that, in proportion as we penetrate downwards into it, they become gradually less, and, at a certain depth, entirely cease. This, at first view, does not appear to accord with the effect of sulphureous vapours, which, rising from the bottom of Solfatara, and passing through the lava, might be expected to cause a greater change in the lower parts than the higher, from their having there greater heat, and consequently being more active. But we must consider that this may indeed be the nature of their action, where the lava is spongy, or at least very porous, but not where it is compact, and almost impenetrable to such vapours, as is that of Solfatara. And, in fact, we find that the sulphureous fumes which arise there do not issue from the body of the lava, but always from fissures or apertures in it, or the subjacent tufa. These impediments, therefore, prevent them from acting except on the surface, when issuing forth they are driven over it by the wind, and penetrating the lava, in a long course of time, produce the changes in question. We meet with few decomposed lavas, within which we do not find fragments of sulphur adherent, condensed there by the acids above mentioned, and which are of the same kind with that produced in such abundance in Solfatara.

But what productive cause shall we assign for those sulphureous vapours, the slow destroyers of the lava, which continually issue from a number of fissures in Solfatara, in the form of hot white fumes ? I can conceive no principle to which they can with greater probability be ascribed than those sulphurs of iron, (pyrites,) which abound at the bottom of the volcano, and decomposing, in consequence of a mixture with the subterraneous waters, slowly inflame, and produce those hot sulphureous vapours, which evidently prove that the subterraneous conflagration is not entirely extinguished. The noisy effervescence, likewise, which in more than one place is heard under the plain of Solfatara, seems to give a certain indication of the decomposition of these sulphurs.

The streams of vapour which arise from Solfatara, according to Father * Della Torre, in the night appear like flame. No person can be more competent to ascertain the truth of this fact than the Abbé Breislak, who resides near the place, and who, when I questioned him on the subject, assured me that he had never observed any such appearance.

It is, however, not impossible but that, at the time he observed them, they might have undergone some change.

The vapours which arise from the ground of the Pisciarelli are very few, and almost insensible, though formerly they must have been numerous and strong, as may be inferred from the great decomposition and whiteness of the lavas found there. I have already mentioned the noise with which the springs that bear this name burst from the earth. They resemble a boiling caldron. The reasons assigned for this phenomenon, by different authors, are various, but, hitherto, all conjectural. On applying the ear to the place where the spring issues, we may perceive that the bubbling noise does not proceed from any great depth, but from a small distance from the surface of the earth. Were the ground here to be dug into, we might, perhaps, be able to discover this secret, the knowledge of which might prove advantageous to volcanic researches. My want of time, and other causes, did not permit me to make the experiment myself when I was at Naples; but I entertain a hope that what I have said may induce some of the lovers of natural knowledge in that city to engage in that undertaking, which I incline to think will not be found useless.

III. We have seen that almost all the lavas of Solfatara contain within them shoerls and felspars. But it has been proved that the changes occasioned in both the latter, by the action of sulphureous acids, are considerably less than those which take place in the lavas their matrices; which difference must arise from the nature of these two stones, which is less liable to extrinsic injuries. We find them, in fact, firmly resist the power of the humid elements. To the south of Vesuvius, and at a little distance from Salvatore, I have found several pieces of very ancient lava, porous, and half-consumed by time, which, however, preserved unaltered their black crystallized shoerls.

It has been observed that the houses of Pompeii, long since overwhelmed by Vesuvius, and now in part dug into and cleared, are found to have been built of lava. I have ascertained this fact on the spot. They are of a reddish colour, very dry to the touch, and some of them will crumble under the finger, evident proofs of the change they have undergone; but no such alteration has taken place in the shoerls they contain; they still retain the hardness and glassy splendour which is appropriate to that stone.

We likewise know that the felspars are indestructible by the air, as appears in the porphyries of which they are a part.

IV. I have already remarked that the lavas of Solfatara usually have for their basis the petrosilex and the horn-stone. I shall add that I have also met with the granite in them, though not in a large mass, but in small detached pieces, which induced me to doubt whether they properly belong to this volcano; and as they likewise appeared to me untouched by the fire, I rather inclined to believe them adventitious. This granite consists of two substances, quartz and shoerl.

But another production must not be forgotten, which forms large heaps on one side of the internal crater of this volcano. This is an ash-coloured tufa, of a middling consistence, in strata of various thickness, with the superficies of each stratum covered with a black crust, in which may be discovered manifest vestiges of plants. The Abbé Breislak, who first observed this tufa, after having shewn it me on the spot, gave me some of these impressions of plants to examine, conjecturing them to be some species of the *alga marina*, or sea-weed. While I was at Naples, I had not sufficient time to make an accurate examination of them; but this I afterwards made at Pavia, from several specimens of the same tufa. Some parts exhibited only the impressions of plants, but in others I found real leaves. They are striated, with striæ running lengthwise, and when touched with the point of a needle, easily break, and appear converted into a carbona-

carbonaceous substance. At first I doubted whether they were plants of the alga; but on examining them again, carefully, with a lens, and comparing the leaves found in the tufa with those of the natural alga, I was fully convinced they were.

This observation appeared, both to me and the Abbé Breislak, to be of considerable importance; since we may conclude from it, that part of Solfatara which is formed by this tufa, has once made a part of the bottom of the sea, and been thrown up by the action of submarine fires. Nor is it improbable that the rest of it has had the same origin, and that all the substances of this volcano have issued from the waters of the sea. Such we know to have been the origin of many other mountains, either now actually burning, or which have ceased to burn.

It is well known that for a long time alum and sal-ammoniac have been extracted from this half extinguished volcano. The method employed for each was as follows. In the process for the alum, certain square places were cleared out in the plain of Solfatara, in which it effloresced, and the efflorescences were swept together, and from them, by methods well known, the salt was collected purified. The sal-ammoniac was obtained by placing a number of pieces of tile round the apertures from which that salt issued, in the form of a subtle vapour, upon which the vapour was condensed. A description of these two methods is to be found in almost all the authors who have written on Solfatara; some of whom, with reason, censure them as imperfect, and consequently not likely to produce the profit which might be obtained.

But we may now hope that both these manufactures may become objects of importance under the direction of the Abbé Breislak, and the liberal patronage of Baron Don Giuseppe Brentano, who has taken this celebrated Phlegrean field at a constant rent. The Abbé, proceeding on the principle that the quantity of alum procured from Solfatara must be proportionate to the area of the space on which it effloresces, instead of the narrow squares formerly appropriated to this purpose, and called *gardens*, has greatly extended the spaces allotted; and that the preparation of this salt may not be prevented by the rain-water draining into the bottom from the steep sides of the volcano, he has surrounded them with small ditches, with deep wells at intervals which receive the water, and where it is soon absorbed by the spongy earth. In the lower part of these sides he has likewise opened a number of cavities equally proper to furnish alum.

The same principle appears to have guided the Abbé in his attempts to increase the quantity produced of sal-ammoniac, by making use of long and capacious tubes of earth, open at both extremities, and baked in the furnace. These receive at their lower ends the vapours abounding with this salt, which attaches itself to their inner sides, and forms there a crust that in time increases to a considerable thickness. I have seen with pleasure at Naples the effects of these two methods; and it is expected they will be still more productive, when some alterations suggested by persons well acquainted with this business have been made.

Formerly sulphur was extracted from the crater of this volcano; but the small quantity of it, and the low price of the commodity, have caused this labour to be abandoned.

Descending from Solfatara, a little above the level of the sea, and near to Pozzuolo, we meet with the ruins of a temple, supposed to have been dedicated to Serapis, and in modern times freed from a slimy eruption, under which it was buried. This edifice may at once gratify the admirer of the imitative arts by its architecture, and the curiosity of the naturalist. Among the parts which still remain entire, are three beautiful columns of that species of white Grecian marble, usually called *cipollino*. They are erect, but at the height of about nine feet from the ground, each column begins to appear worn;

and this wearing extending round the column, forms a horizontal band or fillet, which is rough and unequal, about two feet in breadth, while the remainder of the column is smooth and polished. This band is in every part bored by the marine animalcule called *Mytilus lithophagus* by Linnaeus, and in some of the perforations the shells are still to be found, either entire or in fragments.

But besides this species, which is well known to Conchilogists, I have discovered another, which I had before found, in a living state, in some subaqueous marbles in the lake of Venice, an accurate description of which I shall reserve for another work. Several of the shells of this mytilus, which is smaller than the other, are to be found in the perforations of this part of the column. In fact, on examining with attention besides the holes made by the two species of mytili already mentioned, I found many others, extremely small ones, which all who are acquainted with the different species of marine animalcula, will know to be the work of other lithophagous worms. I must likewise add that I have found among them some serpules, and particularly the *contortuplicata*, and the *triquetra* of Linnaeus. These are the marine animalcula which have eaten into the three columns near the middle of the shaft, producing that circle of inequalities and roughness, except which there is no vestige of these animals.

On the plain of the Temple are found several other fragments of columns, some of the same *cipollino* marble with the former, and others of African marble; which fragments have likewise bands or fillets of inequalities and roughness similar to those before described, above and below which the marble is perfectly smooth, and still retains the polish it originally received from the hand of the artist.

On the same plain we see scattered several columns of granite which appeared to me to be oriental; the component parts of which are black mica with large flakes, which is very abundant, a large proportion of felspar and quartz. But these columns have not been touched by the corroding worms; nor was it to be expected that they should, as it appears, from a variety of instances, that they only attack calcareous stone.

M. Ferber, in his letters before cited, mentions this appearance in the columns; but he only notices the *mytilus lithophagus*, which he calls the *pholas* or *dactylus*. But the cavities, in which these pholades have lodged being nine feet high above the present level of the sea, he infers that the sea has sunk nine feet, supporting this inference by the observation "that the pholades always reside in rocks level with the surface of the water, and never are found near the bottom."

But this is an assumption contrary to fact, as I shall easily prove. The pholades in these columns, which, according to Linnaeus and other systematic naturalists, belong to the genus of the mytili, I have very frequently found in the Gulf of Spezia at Genoa, and in its environs, within the port itself of that city, in several places in the sea of Istria, and other parts of the Adriatic, and likewise in the Mediterranean. But in all these places I have found them in sub-aqueous rocks, never or scarcely ever level with the surface of the water; and frequently I have procured them to be fished up from the bottom of the sea at the depth of ten or twelve feet, by the means of long and stout forceps, which drew up large pieces of the rock in which they were contained in a living state. I have also in my possession several of these pholades, or more properly speaking mytili, infixed within the hard shells of very large oysters fished up in my presence from the depth of one hundred and forty two feet. But in these columns we find not only the remains of mytili, but of serpules and of other very small lithophagous worms which are found in the sea at every depth. As therefore the supposition of Ferber, that the pholades or mytili always reside at the surface of the water only is contrary to fact, his deduction that the level of the sea has sunk nine feet since the time of the corroding of these

these columns, must likewise evidently be erroneous. All that we can with certainty affirm is, that the circle or fillet which has been the habitation of these marine worms, has been covered by the sea for a long series of years; as may be inferred from the remains of these animals found in the cells they have sunk, which shew that they had attained their perfect size, to complete which they require nearly half a century, as I could prove by incontestible facts, did I not fear it would lead me too far from my subject.

It may perhaps be objected, that it must appear extraordinary that these columns which are now in an erect position, should have been so long washed by the sea-water in that circle only, while the part of the shaft below it remained untouched. Yet might they not, before they were employed in the fabric of which they made a part, have been buried in the sea in such a manner that this circle alone, which is now rich with marine spoils, might be accessible to the water*? But though this hypothesis should not appear satisfactory, and I have no other to offer, I shall content myself with stating the facts of which I have knowledge, without feeling any great solicitude that I am not able to explain them.

CHAP. III.—THE GROTTA DEL CANE.

Errors of Ferber relative to this celebrated grotto.—Experiments of the Author and Abbé Breislak, relative to the mortiferous vapour.—Description of the grotto.—Conjecture that the vapour was anciently more extensive.—Its mean height.—Its heat greater than that of the atmosphere.—Consists of carbonic-acid gas, mixed with atmospheric air and azotic gas.—This carbonic acid, according to the Abbé Breislak, is the produce of the carbure of iron contained in volcanic substances, and combined with oxygene.—The mephitic vapour exhibits no signs of magnetism or electricity.—Phenomena which accompanied the burning of several substances placed within the vapour.—Remarks of the author on the experiments of the Abbé Breislak, and his conjectures on the origin of this carbonic acid.

HAVING visited Solfatara and the surrounding rocks, continuing my journey to the west, I soon arrived at the *Grotta del Cane*. There is no person conversant with literature who does not know that this name has been given to a small cavern between Naples and Pozzuolo, because if a dog be brought into it, and his nose held to the ground, he soon begins to breathe with difficulty, and loses all sense, and even life if he be not speedily removed into the open and purer air. This grotto, though so celebrated both in ancient and modern times, in fact shares its fame with several other places which are endowed with the same deleterious quality; as it is only one of the almost innumerable pestiferous vapours in different parts of the world, especially in volcanic countries, which are quickly fatal both to brute animals and man, though they do not offer to the eye the slightest indication of their presence. They have been mentioned by a numerous list of writers, whom I might cite, were I disposed to make an unreasonable parade of my reading. It is to be remarked that the greater part of these vapours are only temporary, whereas that of the *Grotta del Cane* is perpetual, and seems to have produced its deadly effects in the time of Pliny. A man standing erect suffers nothing from it, as the mephitic vapour rises only to a small height from the ground: I therefore entered it without danger; but notwithstanding the most attentive observation I could make, I could not perceive the smallest visible exhalation.

* They may have originally belonged to an edifice in a distant country, overwhelmed by the sea.

It therefore appeared to me that M. Ferber must have been mistaken, when he says, "the killing damps rise from the ground about a palm above the floor, move along it as a white smoke, and spread through the door in the open air *." But as it has already been observed that the smoke of a torch extinguished in the vapour sinks downwards, assumes a whitish colour, and goes out at the bottom of the door; it appears probable that this occasioned his mistake, especially as he mentions the experiment of the extinguished torch in the same place.

As little can I agree with him that the mischievous effects of this vapour are the consequence of the air being deprived of its elasticity †; since it has been demonstrated that they are to be attributed to the carbonic-acid gas; as was first proved by his learned countryman, M. Adolphus Murray. As we know likewise, that a candle being extinguished in this gas, the fumes which proceed from it mix more readily with the gas than with the atmospheric air; we perceive why the smoke of a torch that ceases to burn in the Grotta del Cane sinks where the pestiferous vapour is strongest, and passing along the ground, goes out at the lower part of the door.

The person who is the keeper or guide at the grotto, and who shews to strangers the experiment of the dog for a gratuity, when the animal is panting and half dead, takes him into the open air, and afterwards throws him into the neighbouring lake of Agnano; insinuating that this short immersion into the water is necessary completely to restore him. M. Ferber relates this fact, and shews that he believed all that was told him concerning it. The truth however is, that the plunging the dog into the lake is a mere trick to render the experiment more specious, and obtain money from the credulous, as the atmospheric air alone is sufficient to restore the animal to life.

The experiments made by M. Murray, to ascertain the nature of this mephitic vapour, have discovered to us what was before unknown, and we owe to him every grateful acknowledgement. They have not however explained every thing we could wish to learn relative to this cavern. Whoever is versed in the knowledge of nature, and acquainted in any degree with the difficult art of making experiments, must be convinced what a number of these might be made in it, which would greatly tend to throw new light on physiology and physics. I conceived a strong desire to attempt several, and communicated my intention to the Abbé Breislak, who accompanied me to the Grotta del Cane. We agreed to divide them between us, that I should apply myself to the physiological, or those which had for their object living beings, and he bestow his attention on the physical. As I was on the point of setting out for Sicily, I resolved to carry this plan into execution on my return to Naples. But Mount Etna and the Lipari isles detained me a long time; and when I returned I had scarcely time to visit Vesuvius, being obliged to repair almost immediately to Padua, to begin my public lectures in Natural History. My friend the Abbé, however, who resides constantly near Solfatara, in consequence of his superintendence of the works there, proceeded after my departure to fulfil the task I had assigned him, and communicated to me the result of his experiments in a letter, which with his consent I here publish, as I am convinced that it will be highly gratifying to my readers.

"RESPECTABLE FRIEND,

Naples, Nov. 20, 1790.

"WHEN you visited this city two years ago, to make observations on the Phlegrean Fields, you did me the honour to propose to me to assist you in making a regular series

* Ferber's Travels through Italy, p. 146 of the English translation.

† Ferber's Travels.

of experiments on the celebrated mephitic vapour of the Grotta del Cane. You may remember that we agreed to divide between us the objects to be examined. You proposed to inquire in what manner the exhalation acts on the animal economy, so as first to suspend its functions, and at last totally destroy them, unless the means of restoration are speedily applied. This problem, though considered by many, has never been investigated with that precision and accuracy which it deserves, nor have experiments been sufficiently multiplied and diversified to establish a general rule. From you I expected that it would have received new light, accustomed as you are to develop the most complicated arcana of nature. In the experiments to be made, you reserved to yourself the physiological, leaving to me the physico-chemical. Your journey into Sicily, and your hasty return to Padua to exercise the duties of your professorship, rendered it impossible at that time for you to execute your part of the plan. I have not dared to treat a subject reserved for you, but I hope that some other, to me fortunate, combination of circumstances may once more bring you back to Naples, and afford you an opportunity to prosecute these inquiries, together with others analogous to them. In the mean time, in some excursions which I have made to the lake Agnano, I have examined with the utmost attention, this little grotto; and have made several experiments, by the detail of which I doubt not but you will be gratified. The subject it is true, has been repeatedly examined by many naturalists, both natives of Italy and foreigners; but their success has not been sufficient to preclude every new experiment.

“The mephitic vapour, as you well know, occupies the floor of a small grotto near the lake Agnano, a place highly interesting to naturalists from the phenomena its environs present, and the hills within which it is included. This grotto is situated on the south-east side of the lake, at a little distance from it. Its length is about twelve feet, and its breadth from four to five. It appears to have been originally a small excavation, made for the purpose of obtaining puzzolana. In the sides of the grotto, among the earthy volcanic matters are found pieces of lava of the same kind with those we meet with scattered near the lake. I examined some of them, and found them a compact lava, of a deep grey colour, interspersed with small hexaedrous prisms of mica. They are of an earthy grain, a micaceous consistence, and have a sensible effect on the magnet. Particles of felspar are rarely found in them, and we meet with no specimens which contain shoerls. I am persuaded that were new excavations made in the vicinity of the grotto, at a level with its floor, or a little lower, the same mephitic vapour would be found, and it would certainly be curious to ascertain the limits of its extent. It would likewise be extremely advantageous for physical observations were the grotto somewhat enlarged, and its floor reduced to a level horizontal plain, by lowering it two or three feet, and surrounding it by a low wall, with steps at the entrance. In its present state, it is extremely inconvenient for experiments, and the inclination of the ground towards the door causes a great part of the vapour, from the effect of its specific gravity, to make its way out close to the ground. When I consider the narrow limits of this place, and the small quantity of the vapour which has rendered it so celebrated, I have no doubt but it must have undergone considerable changes; for it does not appear probable to me that Pliny meant only the present confined vapour, when (lib. ii. cap. 43.) enumerating many places from which a deadly air exhaled, he mentions the territory of Pozzuolo. The internal fermentations by which it is caused are certainly much diminished in the vicinity of the lake Agnano. The water near its banks is no longer seen to bubble up, from the disengagement of a gas, as we learn that it formerly did, from accounts of no very great antiquity. I have attentively examined the borders of the lake when its waters were at the highest, and after heavy rains, but I never could discover a single bubble of air. A
number

number of aquatic insects which sport on the surface, may at first view occasion some deception; but a little observation will detect the error. If we do not suppose those authors who have described the ebullition of the water near the banks of the lake Agnano to have been deceived, we must at least confess that this phenomenon has now ceased. The quantity of the hepatic vapours which rise in the contiguous stoves, called the stoves of St. Germano, must likewise be greatly diminished from what it anciently was: for adjoining to the present stoves, we still find the remains of a spacious ancient fabric, with tubes of terra cotta inserted in the walls, which by their direction shew for what purpose they were intended. It appears certain that this was a building in which, by the means of pipes properly disposed, the vapours of the place were introduced into different rooms, for the use of patients, who were accommodated there in a much better manner than they are in the modern stoves of St. Germano, which wretched places nothing could induce them to endure but the hope of being restored to health. To these ruins, however, the vapours no longer extend; so that if this edifice still remained, it could not be employed for the purpose for which it was intended. The veins of pyrites which have produced the more ancient conflagrations of the Phlegrean fields, between Naples and Cuma, and which in some places are entirely consumed, approach their total extinction. But let us proceed to the experiments made, and frequently repeated within the grotto.

“I. The first had for its object to determine the height of the mephitic at the centre of the grotto, that is, at the intersection of the line of its greatest length with that of its greatest breadth. This height varies according to the different dispositions and temperatures of the atmosphere, the diversity of winds, and the accidental variations that take place in the internal fermentations by which the vapour is produced; it may however be estimated at a mean, at eight Paris inches.

“II. The entrance into the mephitic is accompanied with a slight sensation of heat, in the feet and lower part of the legs. When, in the year 1786, I visited the large mephitic vapours of Latera, in the duchy of Castro, I likewise observed that they produced the sensation of heat in the part of the body which was encompassed by the mephitic atmosphere. Yet on taking out of the vapour several substances which had remained in it a long time, as stones, leaves, carcases of animals, &c. I found that these were of the same temperature with the atmospheric air; but as I had broken my thermometer on the road, and was unable to procure another in any of the places through which I passed, I could not ascertain the temperature of the mephitic. I felt in my body a slight degree of heat, which I could not perceive in the substances I took out of the mephitic vapour; and endeavouring to compare one thing with another, I concluded that the temperature of the mephitic was the same with that of the atmospheric air, which I attempted to explain to myself on the principles laid down by Dr. Crawford. But a number of other experiments made in the Grotta del Cane, convinced me that this exhalation has a distinct degree of heat, different from that of the atmosphere. In these experiments, which I repeated many times, the thermometer suspended at the aperture of the grotto, three feet above the surface of the mephitic, stood at between 13 and 14 of Reaumur's scale (62 and 64 of Fahrenheit's); and placing the ball on the ground, so that it was immersed in the mephitic vapour, the mercury arose to between 21 and 22 of Reaumur (80 and 82 of Fahrenheit). Nor ought it to excite surprise, that the substances taken out of the mephitic did not exhibit this diversity of temperature, both because the difference is small, and on account of the quantity of humidity with which they are always loaded, and which produces on their surface a continual evaporation. I frequently repeated this experiment, making use of different thermometers, because I knew that the celebrated M. Adolphus Murray, when

he made his experiments in the Grotta del Cane, had not observed the vapour to produce any effect on the mercury in the thermometer.

“ III. I repeated, for my own satisfaction, the usual experiments made by many naturalists, with the tincture of turnsole, lime-water, the crystallizations of alkalis, the absorption of water, and the acidulous taste communicated to it, which prove beyond all doubt the existence of fixed air, or carbonic acid, in the exhalation of which we treat. But is it composed of fixed air alone? This I wished to ascertain. When exposed in an eudiometer to nitrous gas, an absorption took place, to about the $\frac{1}{8}$ of the quantity. In a phial filled with this air, and continued with the mouth immersed in water for fifteen days, the water slowly rose until it occupied $\frac{1}{8}$: it may therefore be concluded, that the relative quantities of the different gases which compose the mephitic air of the Grotta del Cane are as follows: $\frac{1}{8}$ of vital air, or oxygenous gas, $\frac{1}{8}$ of fixed air, or carbonic acid, and $\frac{1}{8}$ of phlogisticated air, or azotic gas; or perhaps it is a mixture of carbonic acid and atmospheric air, with a small quantity of azotic gas, more than is contained in the atmospheric air.

“ The vicinity of the grotto to the stoves of Agnano, the warm vapours of which contain a considerable quantity of hydrogenous sulphurated gas, induced me to suspect that some portion of the latter might be found mixed with the gas of the mephitis; but I was not able to discover in it the smallest quantity. I made use of the sugar of lead, or acetite of lead, which, as you well know, is extremely sensible to the slightest impression of hepatic gas, leaving it immersed in the mephitis for the space of half an hour.

“ It is certainly a curious problem to investigate the origin of this fixed air. You are acquainted with the different opinions of naturalists, some of whom consider it as an atmospheric air, changed into fixed by the action of the electric matter of the lava; while others suppose it produced by a slow and successive decomposition of the calcareous earth, effected either by a subterraneous fire, or by an acid. But the fact is, that in the Grotta del Cane there is not a single vein of lava, and that the atmosphere of that vicinity exhibits no particular signs of electricity. The hypothesis founded on the decomposition of the calcareous earth, is likewise subject to great difficulties. Our excellent common friend, the Commendatory de Dolomieu, in his valuable notes to the dissertations of Bergman on the products of volcanoes, is of opinion that the fixed air of volcanic places is produced by the re-action of the sulphur on the calcareous earth, with which it forms a liver of earthy sulphur. I am rather inclined to believe that the fixed air of volcanized countries is not developed ready formed from any substance, but is the produce of the plumbago contained in the iron, with which all volcanic substances abound, combined with the base of vital air afforded by the internal decompositions of the pyrites. I am not induced to embrace this system by its novelty. The experiments of Messieurs Lavoisier, Berthollet, Mongez, Landriani, and many other excellent chemists, compared with local observations, have proved, beyond a doubt, the existence of plumbago in iron. It is certain that all volcanic substances abound in iron, and the hepatic vapours which rise in the stoves of St. Germano, in the vicinity of the Grotta del Cane, prove the internal decomposition of the pyrites, which still takes place here: a decomposition which, by giving birth to the mephitic acid, furnishes likewise the base of vital air.

“ IV. Among the notices which the celebrated Bergman wished to receive, relative to the Grotta del Cane, he desired a detail of the phenomena of magnetism and electricity. With respect to the former, I have observed no new appearance. The magnetic needle, placed on the ground, and consequently immersed in the mephitis, rested in the direction of its meridian; and, at the approach of a magnetized bar, exhibited the usual effects

effects of attraction and repulsion, according as either pole was presented. With regard to the latter article, it is not possible to make electrical experiments within the mephitic; not because that kind of air is a conductor of the electric fluid, as M. Murray imagined, but because the humidity that constantly accompanies it disperses the electric matter, which not being collected in a conductor, cannot be rendered sensible. I several times attempted to fire inflammable gas, in the mephitic vapour, with electric sparks, by means of the conductor of the electrophorus; but, notwithstanding my utmost endeavours to animate the electricity, I never could obtain a single spark; as the isolator became a conductor the moment it entered into the mephitic, on account of the humidity which adhered to its surface.

“V. One of the principal objects of the researches of academies and naturalists at present is the theory of the combustion of bodies. My first experiment was directed to ascertain whether those spontaneous inflammations which result from the mixture of concentrated acids with essential oils could be obtained. I placed on the ground, in the grotto, a small vessel, in such a situation that the mephitic rose six inches above the edges of the vessel. I made use of oil of turpentine, and the vitriolic and nitrous acids, and the same inflammation followed, accompanied with a lively flame, as would have taken place in the open atmospheric air. The dense smoke which always accompanies these inflammations, attracted by the humidity of the mephitic, presented its undulations to the eye, and formed a very pleasing object. As I had put a considerable quantity of acid in the vessel, I repeatedly poured in a little of the oil, and the flame appeared in the mouth of the vessel fifteen times successively. This oxygenous principle contained in the acids, and with which the nitrous acid principally abounds, undoubtedly contributed to the production and duration of this flame, though enveloped in an atmosphere inimical to inflammation.

“In the district of Latera, which I have mentioned above, I observed that in a mephitic of hydrogenous sulphurated gas, or hepatic gas, a slow combustion of phosphorus took place, with the same resplendence as in the atmospheric air. As I had not with me a sufficient quantity of phosphorus, I could not proceed farther with this experiment, nor vary it as might have been necessary. In the mephitic of Agnano, the first experiment I made was with common phosphoric matches, of which I broke five, holding them close to the ground, and consequently immersed in the mephitic. They all produced a short and transient flame, which became extinguished the moment it was communicated to the wick of a candle. The second experiment I made was the following: I placed on the ground, in the grotto, a long table, in such a manner that one end of it was without the mephitic; while the other, and four-fifths of its whole length, were immersed in it. Along this table I laid a train of gunpowder, beginning from the end without the mephitic; and at the other, which was immersed within it, the depth of seven inches, I placed, adjoining to the gunpowder, a cylinder of phosphorus, eight lines in length. The gunpowder without the mephitic being fired, the combustion was soon communicated to the other extremity of the train, and to the phosphorus, which took fire with decrepitation, burnt rapidly, with a bright flame, slightly coloured with yellow and green, and left on the wood a black mark, as of charcoal. The combustion lasted nearly two minutes, till the whole phosphoric matter was consumed.

“I then proceeded to another experiment. I placed some gunpowder on the ground in the grotto; and having lighted a cylinder of phosphorus without the mephitic, I immersed it within it while burning, carried it the distance of ten feet, and threw it on the gunpowder, which immediately took fire. No alteration was perceptible in the flame, or manner of burning, of the lighted phosphorus, either at the moment of its entrance into the mephitic, or during its continuance in it.

“I after-

"I afterwards lighted another cylinder of phosphorus, and conveyed it immediately into the mephitic, supporting it with a small piece of wood; and this likewise burnt briskly, until it was entirely consumed."

"It may perhaps be suspected that, in the experiments with gunpowder, the oxygenous gas contained in the nitre co-operated to the combustion of the phosphorus; but it is certain that, independent of the nitre, this curious substance, though it burnt in mephitic air, presented the same appearances as in the atmospheric air. I am aware that, among the experiments of M. Lavoisier, there is one on the combustion of phosphorus produced by means of a burning mirror, under a glass bell, the mouth of which was immersed in mercury. That excellent naturalist observed that the phosphorus began to burn, but that in a few moments the air of the receiver being no longer proper to nourish the combustion, it became extinguished. Is it not probable that the extinction of the phosphorus did not proceed from the infection of the air, but that the vapours of the phosphoric matter remaining confined in the receiver, and condensing around the phosphorus, suffocated its flame? The mephitic gas of the Grotta del Cane is certainly unfit for the respiration of animals, and the inflammation of common combustible substances; but phosphorus, nevertheless, burns in it, and emits, as usual, luminous

"I must not conclude without noticing the production of the phosphoric acid from the slow combustion of phosphorus in the mephitic. Perhaps this may present particular modifications, dependent on the carbonic acid, to which it must necessarily unite itself in this situation. But I have not yet been able to prosecute this experiment, the temperature of the place not being such as is requisite to make use of the apparatus suited to the method of M. Sage. I shall therefore defer the investigation of this subject until the winter; when I purpose to resume it, if I can procure free access to the grotto, for some little time, by satisfying the avidity of its rapacious guardian.

I remain, with sentiments of the utmost friendship and esteem,

Your devoted servant and friend,

SCIPIO BREISLAK."

The observations and experiments communicated in the above letter, undoubtedly enlarge very considerably the sphere of our knowledge relative to this mephitic place; and I sincerely congratulate the author on the success of his researches. But the same sincerity induces me to mention an observation which occurred to me while reading his letter, and which I am convinced his friendship will permit me to make public. The method he used to obtain the mortiferous gas on which he made the experiments here related, was, I doubt not, the same with that employed to ascertain the salubrity of the atmospheric air; that is, by taking a phial filled with water, inverting and plunging it into the mephitic, then letting the water gradually out, and carefully closing the phial. Had any other method been used, I doubt not but it would have been mentioned. But by this the mephitic could not be obtained pure, such as it immediately issues from the floor of the grotto, but must be more or less mixed with atmospheric air. For the carbonic acid gas being heavier than the atmospheric air, it must consequently form a stratum in the lower parts of the grotto, where it will in general remain, though there will be some mixture of the two fluids; especially when the door is opened, and the internal ambient air put in motion. Hence the mixture of the three gases, the carbonic acid, the azotic, and the oxygenous, obtained by the Abbé Breislak. I had, however, suggested to him, that the best method to obtain this emanation pure would be to dig a small trench in the ground of the grotto, and to fill it with water; when a number of bubbles would

would no doubt rise from the bottom to the surface, which would probably only consist of the carbonic acid gas suspended in the body of the water. The contents of these bubbles might be collected by methods well known, and we should thus procure the genuine mephitic, without any mixture of atmospheric air. For greater accuracy in the experiment, mercury might be placed under the water; as it seems probable that the tufaceous soil would not be sufficiently dense to retain it.

We have seen the opinion of this learned naturalist, relative to the origin of the carbonic acid in this grotto. It is evident that in this, as in many other questions of a similar kind, we can only amuse ourselves with conjecture, and perhaps we may never be able to proceed farther than conjecture, relative to an operation which nature has veiled in profound obscurity, and withdrawn from the observation of our senses. But since certainty is not attainable, I must ingenuously declare, that among the different hypotheses that have been framed to account for this abstruse phenomenon, I prefer that which supposes that the mephitic of the Grotta del Cane is separated, by the means of fire, from carbonates of lime, (or calcareous earths,) and that, passing through different volcanic substances, it has penetrated to that place. It is highly probable that the volcanos of the Neapolitan territory, and also those of the ecclesiastical state, are superincumbent on strata of such carbonates, continued and connected with those of the Apennines. In my way from Lombardy to Naples, when I arrived in the neighbourhood of Loretto, the road began to lead between mountains, which continued to Fuligno, a distance of nearly seventy miles. These mountains, almost all with horizontal strata, are composed of these carbonates. The road from Fuligno to Spoleto and Terni presents a chain of mountains of the same kind, and nearly with the same stratifications. These mountains extended to within a little distance of Civita Castellana, where I found sufficient testimonies of extinct volcanos, in the puzzolana and lavas, which I met with at every step. Some of these lavas are of a base of shoerl in the mass, and others of a horn-stone base: they all resemble the Vesuvian with respect to the white garnets they contain. The volcanic bodies, and various kinds of tufa and puzzolana, continued to present themselves quite to the gates of Rome. From this city, continuing my journey to Naples, by the way of Velettri, I continually met with volcanized matters; but at Terracina the mountains next the sea again appeared to be formed of calcareous earth, as did those of Sessa. But whatever may be the character of the more elevated parts, the bottoms, through which the high road passes, consists of tufa, which exhibits the true signs of volcanization not only in the pieces of lava, and the great number of pumices it contains, but from being in a great degree a mixture of small fragments of lava and scoria.

It is to be remarked, and it is worthy of attentive consideration, that when we leave the road, and ascend the steep eminences on its sides, we frequently find beneath the tufa calcareous stone, especially in places where the former has been corroded by rain water. The remainder of the Apennines from Sessa to Naples are formed of the same calcareous stone; though in lower situations the volcanic tufa is scarcely ever interrupted.

In Chap. VI. I shall speak of a volcano which I observed near Caserta, a small city about sixteen miles from Naples. I shall then shew that the volcanic matters are there every where surrounded by calcareous stone.

The Fossa Grande, which descends laterally from Mount Vesuvius, and which I have mentioned in Chap. I., is bordered on the sides by two high rocks. That which is on the left, the side toward Naples, owes its origin to an aggregate of lava; while that on the right is composed of pumice-stone and tufa; which not being firmly connected,

frequently fall by their own weight, especially when loosened by rains, and in their fall bring down with them various substances, of which some are calcareous spars, mixed with pieces of the common calcareous earth, which, as I have already mentioned, I met with in my journey to Naples. These substances seldom exhibit any traces of injury by the fire: their angles likewise are not blunt or ragged, but sharp. It is, however, indubitable that they are pieces rent from great masses of calcareous stone, before the violence of the fire had time to change them. These observations I made on my return from Vesuvius to Naples.

The author of the *Campi Phlegræi*, speaking incidentally of the Fosse Grande, gives the figure of a piece of calcareous breccia found there; and observes that similar pieces are frequently found in the excavations made by the rains in the sides of Vesuvius and Monte Somma. The *Lithologia Gioeniana* which treats on the productions of this volcano, mentions similar calcareous stones to have been thrown up from its mouths in former times.

The island of Capri, near Naples, it is to be observed, is likewise composed of calcareous earth.

From all these observations, it appears to admit of no doubt that the Neapolitan territory, which we see volcanized, rests on calcareous strata. This was likewise the opinion of Ferber and Sir William Hamilton.

If then we suppose the subterraneous fire to act gradually on the calcareous stone, compelling it to divest itself by degrees of its acid, while it becomes covered with earthy aggregations easily permeable to this acid, now becomes gaseous, the gas will issue above it, and form a current mingling with the atmospheric air. This probably will explain the nature of the emanation in the Grotta del Cane. The Abbé Breislak has shewn that the heat of this emanation is greater than that of the atmosphere; which affords us reason to suppose that a remainder of volcanic fire exists under the grotto. The great humidity of the vapour is likewise extremely favourable to this hypothesis, since we know that calcareous stone, by the action of fire, is not only deprived of its acid, but of the water which it contained. It may be objected that on this supposition the méphitis must diminish; but it should be considered that its extent is very confined, while the quantity of the subjacent calcareous matter is immense; and it is likewise well known what a prodigious quantity of this acid is combined with such stones.

This hypothesis will likewise explain the temporary méphitis which arise only in consequence of particular eruptions, as frequently happens in the environs of Vesuvius. The deleterious exhalations will continue till the subterraneous fires have decomposed the calcareous stones; but they cease when the conflagrations are extinguished.

CHAP. IV.—LAKES OF AGNANO AND AVERNO.—MONTE NUOVO.—PROMONTORY
AND CAVERN OF MISENO.—ROCK OF BURNT STONES.—PROCIDA.

The lake of Agnano once a spacious volcanic crater.—Tenches and frogs found in this lake.—The absurd report that monstrous animals are produced there, detected by Vallisneri.—The lake of Averno presents the mouth of another ancient volcano.—It is false that birds cannot approach this lake.—No deleterious exhalation emitted by it.—Volcanic substances of Monte Nuovo.—Lavas found there of the nature of pumice and enamel.—Soda grows in a little cavern of its crater.—Peculiarity of amphibious animals observed here.—The cavern of Miseno abounds in sulphate of alumine (alum) and pumice.—Well of water full of gaseous bubbles.—Volcanic crater still discernible on the promontory of Miseno.—Pumices found there, containing felspars.—Lava, pumices, and enamels of the same nature, found on the Rock of Burnt Stones, and at Procida.—Great friability of this enamel, not common to volcanic enamels, and its probable cause.

THOUGH the Phlegræan fields are numerous, I in this work propose to describe, or at least to give a sketch of them all; since, though they are all volcanic, the objects they present are few, and little different from each other.

I believe no one doubts that the cavity filled with water, and usually denominated the lake of Agnano, has been the mouth of a volcano. It certainly has internally the resemblance of one, since it is shaped like an inverted funnel, the usual figure of volcanic craters. It must have been a very large one, since it is nearly two miles in circuit. Numerous flocks of ducks swim on its surface, and its waters contain great quantities of tenches and frogs, which were once celebrated for a pretended monstrous formation, until the cause of this absurd error was detected by Vallisneri. It may not perhaps be uninstruative should I, by way of an amusing digression, relate the story of this pleasant mistake to the reader.

It is well known that frogs, before they arrive at the perfect form of their species, have that of a kind of worms, usually called tadpoles, the bodies of which are of an orbicular shape, and have tails. We know likewise that these tadpoles become frogs by degrees, the hinder legs being first produced, and afterwards the fore legs, while they retain the tail for a considerable time. This gives them a strange appearance, as the tail appears like the lower half of a fish, while the round body and legs resemble the frog. Hence persons unacquainted with the productions of nature have supposed them to be monstrous animals, half fish and half frogs. A credulous Neapolitan brought one of these monsters, which he said was a native of the lake Agnano, to Vallisneri, at Milan, that he might view it and admire. It did not, however, require the knowledge of so great a naturalist immediately to perceive the absurd error. The tadpole, which to him was an object of laughter, not of admiration, was of an extraordinary size, whence he concluded that the frogs of the lake Agnano were extremely large. They are not, however, larger than the common size, nor did I find the tadpoles bigger, though, as it was the end of July, they had arrived at their full growth, and many, having cast their tails, had become perfect frogs. That which was shewn to Vallisneri was possibly brought from some other country, perhaps America, where the frogs grow to an extremely large size.

The sides and bottom of this lake are of tufa, interperfed in some places with fragments of lava and pumice-stone; though we do not find, at least so far as the eye can reach, any veins or strata of lava: whence I infer the eruption to have been entirely, or in a great degree, thick and slimy.

The same ideas which naturally occur to the observer at sight of the lake Agnano, will be suggested likewise by that of Averno, as there can be no doubt but this likewise was the crater of an ancient volcano. The Greeks called it *Aornus*; because no birds were found near it, probably on account of some pestilential vapour which then exhaled, and deprived them of life. The author of the *Campi Phlegrei* asserts that it is very rarely that any water-fowl are to be seen on this lake, and that when they come they remain there but a very short time. The truth however is, that whenever I was there, I saw great numbers of teal swimming on the surface, and the peasants assured me that the lake abounded with water-fowl in the winter. Nor do I know any cause which can, at present, drive them from a place where they may find plenty of food; as neither the environs, nor the lake itself, afford any indications of noxious exhalations.

These two places lie to the west of Naples, near Pozzuolo, in the vicinity of which is Monte Nuovo, so called because it was produced by subterranean fires in 1538. It is not very high, and seen from the port of Pozzuolo, appears to be an obtuse cone; but, on reaching the top, we discover that this cone is only the exterior part of a crater, the upper edges of which form a circle of about one hundred and fifty feet in diameter.

Like other volcanic craters, the internal sides of this grow narrow towards the bottom, and both that which I call the bottom, and the external part of Monte Nuovo, consist of a friable tufa, in many places, covered with plants. The sea bathes the sides of this volcano, which, if they are dug into a little, as well within the water as without, are found very warm. The same warmth is likewise perceived at the bottom of the crater. From such excavations, likewise, arise thin warm vapours. In fact, in the internal parts of Monte Nuovo we find all the last remains of volcanic conflagration.

In the external sides of the mountain many pieces of lava are found, which deserve notice from their singular quality. They are a substance of a middle character between lava and pumice-stone, on which account I shall call them pumice-lavas. They have the lightness and friability of a compact pumice-stone. When broken by the teeth, by which a good judgment may be formed of some stones, they appear real pumice-stone. They are dry and rough to the touch, as is usual with such kinds of volcanic productions. Their structure is not fibrous, contrary to what we observe in common pumice-stone, but granulous, and very similar to that of various kinds of lava, as is likewise the internal appearance. This production is of importance, as presenting a middle substance between lava and pumice-stone. The base of these stones is a horn-stone, mixed with a few felspar scales: they scarcely adhere to the tongue, and emit a slight argillaceous odour. In the furnace they produce a compact enamel, of a dark grey colour, transparent at the angles, and which gives a few sparks with steel.

Towards the internal bottom of the crater we find, projecting from the tufa, the same kind of lava, penetrated with felspars, but more compact and heavy, and interspersed with beautiful and shining veins of black enamel of various thickness. I am in doubt whether this species of vitrification was the consequence of a greater degree of heat to which the lava had been there exposed, or whether, from the difference of its quality in those places, it had undergone a more perfect fusion, and become enamel, while in others it had remained in the state of lava.

On the side of this bottom we find, within the tufa, a small cavity, I know not whether formed by nature or art, that abounds with saline efflorescences, which I at first imagined to be muriate of ammoniac (sal ammoniac), or sulphate of alumine (alum); but their urinous acrid taste; the green colour which they gave to syrup of violets, and other qualities that are proper to soda, and which I omit for the sake of brevity, leave no doubt that they are formed from that salt. Besides these efflorescences, the small hollows, corners, and bottom of this cavity are more or less covered with the dust of this soda.

I cannot take leave of this volcano without mentioning an observation, which has some analogy to what has been before noticed of lake Agnano, as it relates to the same species of animals. On the tufaceous sides of the crater, both internal and external, as often as I approached them, I saw a great number of frogs leaping about. They were nearly half an inch long, and a quarter in breadth. They had the complete form of the frog, were of a dark yellow colour, and their fore feet were divided into four toes, and their hinder into five, though they have not the shape of the hand, which constitutes an essential difference between these frogs and the others of these countries. But how are these amphibious animals produced? Among all the different species of European frogs (and under this genus I, with Linnæus, likewise include toads) I know none which do not begin their existence in water, and continue to live in it some time, until they throw off the mask of the tadpole, and assume the shape of frogs. But Monte Nuovo is not only entirely without moisture, but, as I learned from the peasants who reside in the neighbourhood, even when heavy rains fall, the bottom of the crater (which is the only place where rain-water can be collected and retained) imbibes all the water immediately; as, in fact, it must, since it consists of a light spongy tufa full of cracks and fissures.

The only water near, is that of the lake Agnano, about half a mile distant; from which these animals might be supposed to have derived their origin, were it not that the frogs of that lake are of a totally different species. I must therefore confess, that the presence of these creatures here was to me an enigma, which, perhaps, I might have been able to have solved, not without some advantage to natural knowledge, had I been able to have made a longer stay in this volcanic country.

Before we reach the promontory of Miseno we arrive at the harbour, which is a very secure basin, as it is surrounded on every side by eminences. This was the port for the Roman fleet in the Mediterranean. The eminences are of tufa; and, on one side, a little above the level of the sea, we find a spacious cavity, the work of art, called the Cavern of Miseno, in which the muriate of alumine continually effloresces. This salt is either unknown to or neglected by the inhabitants; though it might be extracted with great advantage, especially were the cavern enlarged, (which it might easily be, as the tufa is extremely soft,) since the saline efflorescences would certainly increase in proportion to the enlargement of the superficies.

At the bottom of the cavern there is a well of water bubbling up, with sometimes more, sometimes fewer, gaseous bubbles, which rise from the bottom. The water is nearly of the same temperature with the atmosphere, and the gas, from the scent, appears to be sulphurated hydrogenous; but I had not convenient opportunity exactly to ascertain its quality. The sides and roof of the cavern are scattered over with common pumices, containing various felspars, some calcined and consequently deprived of their native lustre, without, however, having lost their natural crystallization, which is rhomboidal.

Beyond the port of Miseno is the promontory of the same name, which forms a tufaceous mountain of no despicable height; from the top of which some admirable prospects present themselves. This likewise, certainly owes its origin to a volcano, as its crater is still very discernible, though in a great measure destroyed, on the south side, by the waves of the sea.

Having proceeded to some distance from this promontory, I met with several lavas immersed in the tufa, both of the compact and porous species, but common to other volcanos, and all detached. Mixed with these were various pieces of pumice, in like manner detached, in which felspars were, I will not say scattered, but thickly sown. In a square inch of this pumice I counted fourteen on the exterior surface, and forty-seven within. They are crystallized with various faces, are somewhat less hard than quartz, and have that changeable brilliancy which is inseparable from felspars. The fire does not appear to have been able to injure them, though it has changed their base into pumice, which is in fact a real vitrification.

In front of Procida, and at a little distance from it a small low rock projects into the sea, formerly only known to fishermen, and called the *Rock of Burnt Stones*, because it is in fact a mixture of pumices, enamels, and lavas. The first naturalist who noticed it was the Abbé Breislak, who conducted me to it with a particular kind of pleasure, as a place appertaining to himself. A stay of two hours, which I made on it, was well rewarded by the objects it presented. Its elevation above the surface of the water is only a few feet, and consequently in tempestuous weather, it must be covered by the waves. On making the circuit of it in a boat, and examining it, we find that only the projecting points rise above the water, and that the body of the rock is below the surface. Hence it appears probable, that it was once much larger, but has been in a great degree destroyed by the violence of the waves.

The stones of which this rock is composed are principally of two qualities. The first, a lava of a horn-stone base, light, of a dark grey colour, an earthy grain, unequal, and which gives scarcely any sparks with steel. The second is a lava, with a base of shoerl in the mass, which has undergone various changes and modifications, according to the different heats to which it has been exposed. In many fragments, therefore, we only find it a simple lava, while, in others, it has become pumice, and in others enamel. In one part they appear of a whitish colour, fibrous, light, and extremely friable; but, as their levity and friability diminish, they become more compact, and the fibres less discernible; the colour grows darker, and a glassy lustre begins to appear. A little farther, their fibrous quality is entirely lost; their compactness, weight, hardness, and lustre increase, and the unequivocal characters of a perfect enamel are seen. This latter is black, gives sparks with steel, and in its appearance resembles the asphaltum. Its black colour is interrupted by felspars, which are likewise common to the first lava with the horn-stone base. They are extremely brilliant, somewhat fibrous, crystallized in hexaedrous prisms, and several of them five lines in length.

It frequently happens, that the volcanic productions which exist in one place are found likewise in another: that is, that in different situations the earthy matters and the activity of the fire have been the same; a concurrence which may easily take place in various parts of the globe; and which is exemplified in the similarity of a corner of the island of Procida to the Rock of Burnt-Stones. The island is situated to the west of the rock, and is about six leagues in circuit. The shore, being an accumulated mass of tufa, abounds with shrubs and plants. This tufa on the side next Ischia, having been much corroded by the sea, affords a distinct view of its structure, which is in strata; whence

whence we may infer that it has been the production of successive fluid depositions. To the north-west of the island is a rock, on which we find pumices, pumiceous lavas, and enamels, both pumiceous and pure, accompanied with felspars, and the other concomitants with which they are found on the Rock of Burnt Stones; on which account it would be only loss of time to recapitulate their description. I met with only one new stone, which was a common granite, in which were distinctly discoverable its three constituent parts: the felspar in shining needles; a lightly livid, and slightly calcined quartz; and a black mica, which did not shine. It could not therefore be doubted, that it had been exposed to the action of the fire. But as I found this granite loose on the shore, detached from the volcanic products I have before mentioned, I shall notice it no farther.

From the lavas of the horn-stone base, found on this rock, we obtain in the furnace a very compact and hard enamel, which affords sparks with steel; and from the lavas the base of which is shoerl in the mass, as also from the pumice and the enamel, which originate from the same stone, is produced a scorified enamel, so ebullient, that a great part of it boiled over the edges of the crucible, though it was only half full. This violent fusion, however, produced no sensible change in the felspars.

I shall conclude this chapter with an observation relative to the enamels of the Rock of Burnt Stones, and Procida. They are extremely friable; a slight stroke with a hammer will break them into pieces; whereas the enamels of most other volcanos, as we shall see in their respective places, possess considerable hardness, and a much greater than that of common glass. I imagine this defect may be caused by the sea water which is mixed with them, and raised from the sea by the action of fire and æri-form fluids. Thus we know that those liquid vitreous substances which are congealed and consolidated in water, are much more friable than when hardened in the air. I am confirmed in this opinion by observing, that a number of cracks and fissures are to be found in these enamels, an appearance we likewise observe in glass which has been dropped into water while in a state of fusion. It is to be remarked that these enamels, while they were fluid have received within them several extraneous bodies; as pieces of tufa and lava, sands and earths of various kinds, which are found within them more or less calcined.

It is probable from the small distance between Procida and the Rock of Burnt Stones, that they once were joined, and have been separated, in the course of a long series of years, by the action of the sea.

CHAP. V.—ISCHIA.

The Castle of Ischia founded on a rock of lava and tufa.—Singular species of swallows, which make their nests at its top, and on the higher eminences of the island.—Lava of the Arso described.—Its pumices originate from the horn-stone.—The opinion of some volcanic naturalists, that the lava of the Arso, which flowed in 1302, still smokes, ill founded.—Lavæ and pumices scattered between the city of Ischia and the Arso.—Conical mountain, called the Rotara, composed of lavas and pumices,—is the only one in the island which contains enamels.—The high mountain of St. Niccola, probably, at first, rose out of the sea.—Volcanic substances of that mountain.—Some of these substances yield sulphate of alumine (alum).—Excursion round the shore of Ischia.—Volcanic productions found there.—Ferruginous sand abundant on that island.—Is found to be all crystallized.—Enquiries concerning its origin.—No prismatic configuration in the lavas which fall into the sea.—The assertion of some modern writers, that the lavas of the shores of Ischia are a nidus for the pholades, greatly to be doubted.—The Storcs of Ischia, the only probable indication of a remaining internal conflagration.—Considerable diminution of this island.—Difference between the volcanic materials of Ischia and those of the other Phlegrean Fields.—Singular property of the felspars of the Ischian lavas, which melt in a glass furnace, whereas those of other lavas are almost always infusible by its heat.

THE volcanic substances of which this island, eighteen miles in circuit, is internally composed, prove, beyond the possibility of doubt, that it owes its origin to fire. The obscure epochs of the eruptions of these substances have been fixed, by conjecture, by M. Niccola Andria, the learned Professor Royal in the University of Naples, in his interesting work, entitled, *Delle Acque Termali**, in which, before he treats of the warm springs of Ischia, he gives a detail of the natural history of the country, in which he displays equal learning and ingenuity. To this work I refer the curious reader, who will find it extremely instructive.

I shall, however, according to the plan I originally proposed to myself, proceed to describe the principal productions of this island which owe their origin to fire, adding such remarks as the subject may seem to render necessary. I shall begin therefore at the castle of the city of Ischia, which is built on a rock surrounded by the sea, and a little more than a quarter of a mile in circuit. Lava and tufa are the two component substances of this rock. The former is different in its appearance, according to the different places in which it is found; but its qualities appeared to me to be substantially the same. Its base is hornstone: it is compact, of a moderate hardness, an earthy appearance; of a black colour externally, but greyish within. Its dead lurid hue is diversified by a few sparkling rhomboidal felspars.

The furnace produced from it a very compact enamel, of a mixed colour, between that of honey and dark blue, without any alteration in the felspars.

The tufa has no quality by which it is distinguished from the common.

On examining the direction of the tufa and the lava, it was found to continue the same in the neighbouring mountain, which is separated from the rock by a narrow channel of the sea: whence it is obvious to infer, that several currents have descended from

* On the waters of hot baths.

the mountain and plunged into the water, thus forming the rock, which has been divided from the island by the action of the waves.

A number of black and white swallows * make their nests in different parts of this castle, and in the clefts of the rock. The steep and lofty rocks of the island, likewise, afford a secure retreat to these birds of passage.

Leaving the castle and the city of Ischia, and proceeding about a mile to the west, we meet with a torrent of lava, called the *Arso*, (or Burnt Ground,) which is the most recent of any in the island, since it flowed in 1302, and is described by Villani, in his History of Florence. It extended about half a mile in breadth, and about a mile and a half in length, and would have flowed farther, had it not met the sea, in which it was buried. The course of the torrent appears interrupted by eminences and descents, and, at some distance, presents to the eye the resemblance of an immense number of large heaps of mulberries confusedly thrown together. It has no visible crater, if by that term we understand, as is usual, a mouth more or less enlarged towards the edges, and contracted at the bottom; for the lava issued from a narrow cleft at the foot of Mount Tripeta. Though it is little less than five centuries since this lava flowed, a gloomy sterility reigns upon it; it does not produce a single blade of grass, and only affords, in some places, a few arid and useless plants of the lichen, or liverwort. On the surface, and for a little depth, it is light and spongy, and easily crumbles; but deeper, it becomes dense and harder. The same is observable in many lavas, and is the natural effect of the laws of gravity: the lighter parts of a liquid mass rising to the surface, and the heavier sinking to the bottom.

This lava is of the horn-stone base, and has an earthy ground. Its colour is different in different places, and varies from that of iron to a reddish black. The felspars incorporated in it are extremely numerous, and, when attentively examined, in some specimens, may induce us to conclude that the fire which produced this torrent must have been extremely violent; since we find the felspars more or less melted, though generally, those included in lavas appear not to have undergone the least alteration. When we take the lava of the *Arso* from some depth, in the middle of the current, we find this fusion of the felspars extremely apparent. Some appear transformed into little globes, or cylinders; others have been only melted on one side, on which they have lost their crystallized form, though they have preserved it entire in other parts. In some cavities of the lava, where the fusion of the felspars has been more considerable, we meet with singular appearances, which well deserve notice. Sometimes the melted felspar hangs, as it were, in the air, attached only by some radiating threads of the lava itself, in the centre of which it hangs; while another, melting in the side of a cavity, takes the shape of a transparent concave veil. Even those that have not undergone fusion exhibit decisive signs of a strong calcination. They are extremely friable, and their shining changeable colour is in many places turned to a dead white. In consequence of this calcination, the crystals are often no longer found entire, but scattered here in small fragments in the body of the lava. Those in the lava on the sides of the current are less injured, and their crystallization is in quadrangular faces.

As the volcanic fire had reduced many of the felspars in this lava to a state of fusion, I determined to try what effect I could produce on them in the furnace; but though I kept them there two days, I could only obtain a simple calcination.

M. Dolomieu, speaking of the island of Ischia, tells us that the eruption of the *Arso*, though we know it continued two years, never produced any pumice, but only black

scoriæ *. It is true I could only find scoriaceous lava on the surface, and solid lava in the internal parts, through the whole length of the course of the torrent, except at the aperture whence it had flowed; where, amidst a great quantity of fragments of lava, I found several pieces of pumice so completely characterised, that there was no danger of confounding them with the light and porous scoriæ, which have been frequently by persons of insufficient discernment, taken for pumices. These besides being dry and rough to the touch, were fibrous, with long fibres, vitreous, extremely light, shining, and brittle; whereas the texture of the scoriæ and scoriaceous lava of the Arso is granulous, or so confused that no shadow of a fibre appears; nor have they much friability. In other respects, these pumices of the Arso agree in substance with the scoriæ and lava of the same place; the felspars in them are alike, and equally affected by the fire. This observation proves therefore, that the horn-stone, by a violent fire may be changed into a true pumice, though this transmutation rarely happens.

The above-mentioned French naturalist likewise asserts, that the lava of the Arso still smokes in many places; and that the white fumes which rise from it are very visible in the morning when much dew has fallen.

This assertion, though it must appear somewhat extraordinary, would certainly merit belief, had M. Dolomieu himself been an eye-witness to the fact; which had he been, he certainly would have told us. As however he only expresses himself in general terms, it is probable he relied on the information of others. The Abbe Breillak and myself made our observations on the Arso, at the most proper time for discovering these fumes. We repaired thither at sun-rise, and passed there the greatest part of a morning in which there was no want of dew; but our eyes sought this wonderful appearance in vain. Nor could we learn that it had been seen by any other persons; those at least of the inhabitants of the vicinity whom we interrogated on the subject, and they were not few, nor people likely to deceive us, all declared that they had never seen either smoke, vapour, or mist, arise from the Arso. However notwithstanding this, I will not take upon me absolutely to deny the fact. I will only say, that I find it difficult to overcome my doubts: nor am I convinced by the instances adduced by M. Dolomieu, of some lavas of Etna which have not yet ceased to smoke, though they were ejected in 1762; since the time elapsed in the latter case is only twenty-six years, but in the other four hundred and eighty-six.

On my return to the city of Ischia, I met with three lavas rising from the earth like huge rocks. The base of all the three was the horn-stone, but they were distinguished from each other by certain exterior characters.

One of them was of a cinereous colour, of a coarse grain, but compact, dry, and rough to the touch. In its external appearance it was not unlike to some sand-stones.

The second was of a ground entirely earthy: its compactness, weight, and hardness were however greater than those of the first lava.

The third, in its recent fractures, was half vitreous; gave sparks with steel, but languidly; and was more fixed, heavy, and hard than the two others.

All these three lavas had an argillaceous scent, and contained numerous felspars so brilliant and perfect that they appeared to have entirely eluded the violence of the fire.

A number of detached pumices accompanied these lavas, which they resembled in their general qualities; they contained felspars and tinerals, but both reduced to a beginning state of fusion.

But no part of the island so abounds with pumices as the Rotaro, a mountain situated between Casamicciola and the city of Ischia. This mountain is of a conical shape, and composed of tufa, pumices, and enamels. It appears to have been produced by a thick and slimy eruption, and is divided into several strata, particularly distinguishable in the road called *Via del Rotaro*. Between these strata there is an immense quantity of pumices, differing in their size, colours, and density; but similar in their texture, which in all is fibrous. They contain various felspars, which manifest a beginning fusion. They do not form continued currents, as we observe in many of the pumices of Lipari, but are found in detached pieces; yet so disposed, that in many places they form beds or strata. It appears extremely probable, that the volcano, after an eruption of tufa, threw up a shower of pumices, which falling on the tufa produced a bed or stratum, upon which another eruption formed another tufaceous stratum, that was again covered with another shower of pumices; and thus by alternate ejections of tufaceous and pumiceous matters, a great part of the conical mountain was formed. The extent of the pumices, in the direction of the *Via del Rotaro*, is more than a mile; and they principally abound in the more elevated places, where those most proper for the purposes for which these stones are used in Italy, may be collected in great abundance.

Intermixed with the pumices and tufa, we find many pieces of enamel, the thickness of which is from an inch to a foot and a half, and even two feet. These were probably thrown out at the time when the above-mentioned mountain was formed. They are of a black colour, and yield to the strokes of a hammer much more than the enamels of the Rock of Burnt Stones and Procida. Like them, they abound in felspars, and present the usual rhomboidal figure. The Rotaro is the only place in Ischia which affords enamels.

It seems as if it might be considered as an invariable rule, that among the mountains of different elevation which have given birth to volcanic islands, that which rises above the rest, and is commonly placed in the centre, was first produced by the fire; and that those which surround it, and by their junction and extent form the body of the island, are the work of succeeding eruptions, which have issued either from the crater of the primitive mountain, or from the lateral and lower craters, whence have been ejected that aggregate of subaltern and successively lower mountains, by which the most elevated, which occupies the centre is surrounded. In this manner we perceive several of the Eolian isles to have been formed. Such also has been the origin of Ischia; where the mountain of St. Niccola, which in earlier times was called Epopeo, and which is in the centre of the island, and higher than the rest, was no doubt the first that towered above the waves. The constituent substances of this mountain are of various kinds. I have considered, with some attention, those on the side of Lacco, which are stones that in the same manner as those of St. Isidoro, have undergone a decomposition probably to be attributed to sulphureous acids, if from the resemblance of effects we may argue a similarity of cause. The rocks near the sea on the coast of Fafano are less decomposed; nor is it difficult to discover their nature, which is granitic; the mica, felspar, and quartz, being clearly discernible, with some greenish particles of illeites. The quartz and felspars, though somewhat calcined, are tolerably hard; and the mica which is black, has not lost its native splendour. This rock, which does not appear to have suffered fusion, is whitish, and changed in such a manner that it will not resist a blow of the hammer.

Proceeding towards the summit of the Epopeo, we meet with decomposed lavas, partly of the horn-stone base, and partly of that of the petro-silex, in which however the argilla occupies no small part. The lavas of this latter quality, in part not affected

by the sulphureous acids, are of a black hue, of considerable compactness, give sparks freely with steel, and in their fractures, and sometimes externally, present a siliceous appearance. Their odour is sensibly argillaceous. These petrosiliceous lavas are not simple, but contain within them some small flakes of felspar and mica.

In the furnace they melt into a substance of the colour and lustre of pitch, in which however the white felspars appear, or rather are conspicuous.

These lavas are found to be variously decomposed by the acids, in the same manner as is observable in those of Solfatara. In some places they are covered with a thin whitish crust, light, soft to the touch, which attaches to the tongue, and is extremely friable. In others this crust is some inches deep, and in others it extends through the whole thickness of the lava. Sometimes we find it so softened that it has become pulverous; and there is a great quantity of white dust on the brow of the mountain. We may therefore conclude that the sulphureous acids have there been very abundant, and of long duration; though now there is no perceivable sign of any such exhalations.

We know that formerly in Ilichia the sulphate of alumine (alum) was extracted for commercial purposes; and according to M. Andria, who has been before cited, the manufacture of this salt was principally carried on at Catrico, a place situated above Lacco, on the higher eminences of the Epopeo. He informs us however, that he was not able, after the most careful and minute research, to discover any remaining vestige of sulphate of alumine. I will candidly state what I myself observed.

I collected a number of specimens of the different lavas of Catrico and the environs. They are generally compact, very white, and homogeneous to the eye; but they differ from each other by the following exterior characters. Some are moderately heavy and hard; in their recent fractures, and frequently without, they are smooth; and in the centre of some we find a small nucleus of blackish lava, but little decomposed. Others are very light, may be scratched by the nail, are rough and somewhat pulverous in their fractures, and scarcely ever contain within them any residue not decomposed. In short, the former lavas have undergone less change by the sulphureous acids than the latter. When I first examined on the spot the fragments of these two lavas, I could not perceive by the taste any symptom of the sulphate of alumine; but when I had conveyed my specimens to Pavia, together with other volcanic substances, and placed them in my cabinet, on large tables, after some months I observed the following appearances:

In the lavas of Catrico and its vicinity, which had been less affected by the acids, I could discover no trace of alum; but in the other lavas of the same situation, which had been more changed by the said acids, I perceived the sweetish and astringent taste of that salt; and could discover a whitish thin coat of the same, which entirely incrustated them.

At the end of six months the thickness of this coat was a quarter of a line; after which, I did not perceive it to increase in thickness. I made new fractures in these lavas, and continually discovered new coats of the sulphate of alumine; and at the time I now write, which is twenty-seven months since I brought the specimens of lava from Ilichia, they still retain a thin saline crust. I have also satisfactorily ascertained the true nature of this sulphate of alumine, by the ordinary chemical proofs.

As to the second species of lava it never at any time exhibited any sign of the presence of this sulphate; nor have I been able to obtain it by calcination, and a method similar to that which is employed in the territory of Civita Vecchia for extracting alum from such argillaceous stones.

These

These observations however sufficiently prove, that this valuable salt might still be obtained at Ischia; nor should it excite surprise that, when on the spot I could not discover it by the taste; since the humidity of the night, the dew, and still more the rains, had dissipated it as fast as it effloresced. As the species of decomposed lava in which I discovered it, is found in very large quantities on the Epopeo, this branch of commerce, which has been so long neglected in Ischia, might doubtless be revived with very great advantage.

Besides the places I have mentioned, I examined this island in many others, without discovering any novelty worthy of remark; but I could not entirely satisfy myself with such excursions. When I first formed the design of attentively examining Ischia and the Eolian isles, I resolved not only to make my researches in their interior parts, but to coast their shores in a boat, landing at such places as appeared the most suitable to my enquiries.* In this manner I met with many volcanic bodies, which I should have sought in vain within the island; either because they do not exist there, or because they are rendered inaccessible by the rocks and precipices with which they are surrounded, or which they themselves form. The coasts of the volcanic isles are also clothed with lavas, which run out into the sea, and which in some places, by tracing them upwards, discover the crater or mouth from which they have issued. Lastly, by coasting the shores of the islands, we may be enabled to determine whether the prismatic lavas owe their origin to the sea; many writers of repute having asserted that the regularity of their form arises from the sudden congelation that takes place on their precipitating into the sea-water, which causes them to take the shape of regular prismatic columns; a configuration which they affirm is only found in places adjoining to the sea.

For these reasons I determined, after having examined the higher parts of the island, to proceed to consider the lower; and took my departure from Lacco by water, coasting the island on the left. The first mountain which presented itself was the Vico, partly formed of tufa, and partly of two currents of lava, which descend into the sea. The colour of the first, which is of a horn-stone base, is between the grey and iron colour: it is of an unequal grain, earthy, and moderately hard; and abounds in felspars, some in thin plates, others in prisms, and both conspicuous for their brilliancy.

The other lava, which is of the same base, and contains similar felspars, is less compact, more earthy, and consequently less hard: its colour is partly cinereous, and partly grey. These two lavas, in their descent, have raised themselves into little mounds, and are of a considerable thickness.

Farther on is Monte Zaro, formed towards the sea by a river of lava extending a mile in length, and nearly two in breadth. It appears to have been generated by several successive eruptions, which have consolidated one after the other. The base of this lava is horn-stone, and it contains mica and felspars. It is various in its colour, being in some parts of the current of a more or less reddish blue, in others cinereous, and in others white. The mica, which is black, and especially conspicuous in the white pieces, though it has not undergone fusion, has lost its lustre, and acquired a much greater degree of friability than it naturally has. The same has not happened to the felspars, which are as well preserved as if they had never been exposed to the fire. They give sparks plentifully with steel, have a beautiful changeable lustre, are of a vitreous semitransparent whiteness, and being broken, are detached with difficulty. This species of lava so abounds with them, that they occupy the full half of its volume. The greater part are prisms.

Another lava makes a part of the same current of Monte Zaro. This, though it is likewise of a horn-stone base, differs from the former by being one-third less heavy, and

of an earthy appearance; whereas that of the other is somewhat vitreous. Its colour in the more internal parts is reddish; but in the external an ochreous yellow. On the surface especially it is manifestly decomposed; for it is become so soft that it may be scraped with a knife. But the cause which has produced this superficial decomposition in the lava has not injured the felspars, which are extremely perfect, and in this lava may be easily extracted to examine their figure, which is hexagonal with rhomboidal faces. Some of them are half an inch in length, though others are not more than a line.

The bottom of Monte Zaro, which is washed by the sea, is covered with a vitreous sand; which viewed with a lens, appears to consist of a number of particles of felspars, which by liquefaction have had their angles blunted, and been reduced to a roundish figure. They belong to the felspars of the last-mentioned lava.

From the termination of Monte Zaro to the beginning of Monte Imperatore is a long and ample tract, almost entirely tufaceous, scattered over with *rapillo*, as the Neapolitans call it; or as a naturalist would say, with fragments of pumice.

The side of Monte Imperatore which overhangs the sea, derives its origin from a very singular species of lava. I have already spoken of the abundance of felspars in the lava of Monte Zaro; but in this they are found so prodigiously numerous, that at first view they appear to constitute the entire substance. It is necessary to break it, and consider the pieces attentively, to perceive that it has a base, which is of a yellowish earthy horn-stone, easily friable, to very small quantities of which the felspars are feebly attached. Their crystallization is in rhomboidal faces of various sizes, from a line to three quarters of an inch. To this little earthy base are likewise attached various small scales of black hexædrous mica.

The same Monte Imperatore presents us on the side of the sea with large quantities of another lava; which, excepting a very few particles of yellow mica, and some still fewer microscopic felspars, may be considered as simple. This likewise has for its base the horn-stone. The lava appears to have issued from the mouth of the volcano at different times, as we find currents which have flowed over currents, intermixed in a strange and confused manner.

Leaving the Monte Imperatore, we next arrive at the Calle di Panza; a place on the shore from which rises a very high and large rock of lava, interrupted by some protuberances, that attract the eye at a distance and invite observation, which they certainly merit, as they consist of beautiful groups of numerous rough rhomboidal felspars, some two inches in length. They are of a yellowish white, transparent in a slight degree, of a vitreous appearance, a changing aspect, a foliating texture, and manifest their hardness by the quantity of sparks they give with steel. Many hundreds of them grouped together, form roundish masses of half a foot, a foot, and two feet in thickness, which at their lower extremity are set in the lava. Though, as has been said, they are very hard; yet by the means of certain fissures they contain, they may easily be divided into small pieces, either of the parallelopipedon or rhomboidal form. Whence it appears that they have been injured by some external agent, but which seems to have had no relation to sulphureous acid vapours, as we do not perceive the smallest indication of these, either in the felspars or in the lava which contains them. This agent however, whatever it may have been, has produced a considerable effect on the lava, which is corroded in every part; and it is in consequence of its being so deeply corroded, that the groups of felspars have been left uncovered, so that they may easily with an iron point be extracted entire.

This fact appeared to me the more deserving of remark, as in all my former volcanic researches I had never met with any similar: nor indeed have I since; the felspars of other lavas being never grouped, or forming a kind of tumours, but scattered and distributed within them in equal quantities. But in what manner are we to consider these tumours? Are they extraneous bodies that have been by accident included within the lava while it was in a fluid state? This is possible; but it appears to me much more natural to suppose that they appertained to the stony substance which has been changed into lava by the violence of the fire. I would therefore thus explain this phenomenon. Since as we have already observed, the felspars (and the same may be affirmed of the fluorals) are not the product or consequence of the fire, as they are found to exist in many of the primordial rocks; it appears most probable that they were formed within those rocks when they were in a state of fluidity, or at least sufficiently approaching it.

I mean to say, that then the integrant particles of the felspars by their powerful affinity, united in crystallized masses. Where they were at a certain distance from each other they united, forming complete crystals; but where they were thickly clustered, their tumultuary union produced groups of crystals, the greater part of which were of irregular forms. The same may be observed in felds, stones, and especially in quartzose and sparry crystals. Thus, with respect to the felspars in this lava: they are contained in every part of it; and where there is any space interposed between them, their crystallization is perfect; but very imperfect in their groups I have described, and probably from the cause suggested above.

This lava, like the preceding, has for its base the horn-stone; and the external appearance of its current resembles that of a stream which precipitating from a height, has been suddenly congealed and hardened by cold. It abounds therefore in inequalities, elevations, and descents; and on observing its principal track, which passes by the *Calle di Panza*, we are led to expect that the aperture whence it flowed lies higher in the direction of that place where it is in fact found.

A strong wind rising from the south, though it did not prevent me from coasting the island, hindered me from landing, as there was danger of being dashed on some rock by the violence of the waves. I could therefore only observe at a distance a variety of lavas, and a great quantity of tufa, which being continually beaten and diminished by the waves, form precipices and cliffs hanging over the sea.

I however continued my researches by removing to the northern side of the island, where I was sheltered from the wind; but I did not find that the volcanic productions to be met with here presented any novelty. They were almost all of the horn-stone base, and filled as usual with crystallized felspars.

I did not fail to collect and examine the sand of the other parts of the island where I landed, as well that of the shore near *Monte Moro*. I found it as I expected, to be of the same nature with the volcanic productions at the foot of which it was found. The greater portion of the sand consisted however of small fragments of felspars; that being the stone which most abounds in these lavas, and which best resists the vicissitudes of the seasons, and every extrinsic injury.

I must not omit to mention the ferrugineous sand which we meet with in many parts of the island, and which is especially abundant on the sea shore. It not only moves the magnetic needle, but is strongly attracted by the loadstone. This sand is well known in Naples and other places; but one of its qualities which I discovered with the assistance of a lens, has not to my knowledge been hitherto observed. At the first view I imagined with the generality of naturalists, that it must consist of very minute particles of iron, of entirely irregular shape, like those of lapidary sands. Such in fact, they appeared to

the naked eye; but, by the aid of a good lens, I discovered with pleasing surprise, that every grain was the fragment of a crystal, or a complete specular crystal of iron. Of the latter there were not more than three or four among every hundred grains. These small material crystals are formed of two quadrangular pyramids united at the base, and every side of the pyramid is a rectangular or isosceles triangle. But in general we meet with only the fragment of a crystal, and perceive that the part wanting has been destroyed by the action of the waves of the sea on the ferrugineous sand; many of the grains exhibiting their angles blunted, and having assumed a globose figure.

This sand is not confined to Ischia; it is likewise found in considerable quantities on the shore of Pozzuolo. But what is its origin? It is certain that this iron could not thus have crystallized without having a base, or point of support; and in the volcanized countries, no substance presents itself more proper for such a base than the lava, on and within which it has assumed this configuration: but it must be allowed that this lava has been destroyed by length of time, since, among the innumerable specimens I have observed in these countries, I have not found one which exhibited similar martial crystals.

While making the circuit of this island, I continually had in my recollection the opinion of those naturalists who, as I have mentioned above, maintain that the formation of prismatic lavas owes its origin to the sudden immersion of the flowing lava into the water. I could not have wished a better opportunity to form a judgment on this hypothesis, than I here found; where a multitude of currents of lava, in different directions, appear to have rushed into the sea, in which they are still visible to a considerable depth. But I did not meet with one that had assumed any such regular form, or any other resembling it; either among the lavas above the water, those which touch its surface in their descent, or those immersed within it, as far at least as the eye could discern.

From the observations I made while coasting this little island, I was likewise strongly induced to doubt of a fact expressly asserted by M. Andria, in these words; "The lavas, in some places near the sea shore, are found full of holes made by the pholades; at least I am of opinion they are to be attributed to those animals, though I could not find in them any fragments of their shells."

He then immediately proceeds to reason on this fact: "It is manifest that the pholades were directed by instinct to make their lodgements here; but they could not do this till after a long time, when the lava was become fixed and solid."

I shall not venture expressly to contradict this assertion, as I was not able to examine the whole shore of Ischia; and, even if I had examined it, I should still have distrusted my researches; since I could not have been certain that I had explored the precise places of which he speaks, as they are not distinctly described. I shall only candidly say, that I greatly fear there is some mistake, since I never met with any lavas, or other volcanic substances, which had been made the habitation of the pholas, whether by that name he understands the *mytilus lithophagus* or the *pholas dactylus* of Linnæus. In my researches relative to marine animals, I have given particular attention to those which pierce and inhabit sub-aqueous stones. I have examined, with the utmost care, the volcanic substances of Etna, which are bathed by the sea, those of the Eolian isles, and some of those of Vesuvius. Nothing is more frequent than to find on these, various kinds of testaceous animals, as oysters, serpules, lepadæ, and various others of the same species; but I never found them pierced by pholades, or any other animals which corrode fossil substances. I have found these animals in places not volcanic, though not in all, as I have observed that they never make their lodgements but in calcareous stones, of which kind the Ischian lavas, and in general, other lavas, are not.

I therefore incline to suspect that some other cavities, resembling those which are the work of the pholades, have deceived M. Andria. I could at least wish that he would ascertain the fact by repeating his observations on the spot, as, should it be established, it would, in my opinion, be the only example of the kind ever discovered in volcanized stones.

I employed three days in examining this island; and, during my researches, carefully observed whether I could discern any smoke or vapour arising from the ground, whence it might be concluded that the volcanic conflagrations were not entirely extinguished; but I could not discover the least appearance of the kind, nor had any been observed by the oldest inhabitants of the vicinity, of whom I made the most careful enquiries. The stoves of Ischia may, however, induce us to be of a contrary opinion. It is well known that these stoves are filled with warm aqueous vapours, which continually issue from cracks and fissures in the lava, and which, though they have some of the noxious qualities common to volcanic exhalations, are extremely beneficial in many disorders. These certainly can only be produced by a heat which, whatever may be the cause of it, raises the subterraneous water in vapour.

This island, when it was first produced by conflagrations in ancient, and, to us, unknown times, must have been of much greater extent than it is at present. The southern side, exposed to a sea which beats against it without any interposing obstacle, and formed in many places of tufa, one of the least hard of volcanic substances, must have been considerably worn away and diminished; and this diminution must continually increase. Time, which changes and destroys every thing, has likewise produced a great alteration in the interior parts of the island. From the summit of Epopeo, we discover a number of conical eminences; but their internal craters no longer exist, nor do we find in Ischia incontestible traces of a single one, since those depths and ample cavities, those resemblances of theatres and amphitheatres, which we observe around us, may be equally the effect of fire or water.

I shall conclude these observations by an important reflection on the volcanic materials of Ischia. These are different from those of the other Phlegrean fields. Except the mountain Vesuvius, the extensive plain on which the city of Naples stands, the surrounding hills to the north, the north-west, and the west, the craters of the lakes Agnano and Averno, many parts of Solfatara, Monte Nuovo, the promontory of Mileno, Procida, &c. they are the result of tufaceous substances. These are, in fact, not wanting in Ischia; but the predominant part of its composition is various kinds of rock, and principally the horn-stone. The eruption of the Arso, likewise, which is the last conflagration of which we have any knowledge, is composed of the same stone. The substances, therefore, which have furnished aliment to the different conflagrations of Ischia, have had their centre in those argillaceous rocks, which by the above-mentioned eruption in 1302 shewed that they were not then exhausted.

These rocks, as we have seen, abound in crystallized felspars, which in the furnace exhibit a quality we rarely meet with in the felspars of other lavas subjected to the same degree of heat. I mean their fusibility. If we except those of the Arso, which do not yield to the fire, all the felspars of these lavas may be perfectly liquefied. The lava, in which the felspars are contained, acquires a clear colour, and becomes slightly transparent; while in other parts it presents an opaque and imperfect enamel. If the quantity of the felspars included is more than double that of the lava, the product which results is a true glass, but somewhat less transparent than factitious glass; but when the felspars are solitary, and not at all injured by the lava, like those of the *Calle di*

Panza, the glass is perfect and extremely transparent. It has no colour, is very compact, and gives sparks strongly with steel. To bring it to this perfection, it requires a fire of about two days. At the end of the first day, the felspar is only reduced to a paste, similar to porcelain; the pieces then conglutinate together; many exhibit a semi-vitrification, and the surface within the crucible is not horizontal and even, but has risings and cavities, according as the pieces have been put in: by continuing the fire, however it becomes level and smooth.

The prosecution of these experiments induced me to attempt to fuse, with the same degree of heat, two other felspars which are not from volcanic countries; the one being from Mount St. Gothard, and the other from Baveno. Father Pini has the honour of their discovery. The first is in mass, of a shining white, foliated, and very hard. I kept it in the furnace during eight-and-forty hours, but it had only contracted a slight superficial vitreous appearance. When placed within two crucibles joined by their tops, with charcoal entirely surrounding them, in a furnace, the fire of which was violently excited by the bellows for two hours, the angles of this felspar became blunted, and the pieces attached together, contracting a smooth surface, and a milky whiteness, but without any sensible fusion taking place in the internal parts.

The other felspar, from Baveno, is crystallized in tetrahedrous prisms, opaque, less hard than the former, and of a reddish yellow colour. After continuing forty-eight hours in the furnace, a slight conglutination took place in the pieces, which had acquired a snowy whiteness.

On comparing these two felspars and others contained in innumerable lavas, with those of the Ischian lavas, we may conclude that it is very rarely that the fusion of these stones can be obtained by the utmost heat of a glass furnace.

From these observations on the lavas of Ischia we likewise learn another truth. Mineralogists have said that shoerls are more easily fusible than felspars; because they have observed that the degree of heat in which the former fuse is insufficient to fuse the latter. But I have experienced that this assertion is not always true; and it will be seen in the course of this work, that the shoerls of some lavas will resist the same degree of heat in which the felspars of Ischia are completely fused. The cause of this may be, either that the flex sometimes is less abundant in the felspars than in the shoerls, or that their component principles are proportioned in such a manner, that the fusion of some is facilitated more than that of others, or because they contain more iron, it being well known that this metal promotes the fusion of stones.

CHAP. VI. — THE VALLEY OF METELONA, NEAR CASERTA.

The tufa found in this valley, composed of fragments of pumice surrounded by calcareous earths.—Pieces of enamel mixed with it.—This tufa different from other volcanic tufas.—Probability that it communicates with the volcanos of Naples and its environs, and perhaps also with those of the Agra Romano and Tuscany.—Means proposed to ascertain whether the Bay of Naples be the remains of an ancient volcanic crater, and to what distance within the sea the roots of Mount Vesuvius and those of Ischia extend.

AN excursion from Naples to Caserta, and thence to the neighbouring aqueducts, furnished me with an opportunity for new volcanic observations. Some miles before we arrive at the small city of Caserta, ennobled by the superb royal palace, which may be said to consist of four grand palaces united in one by the hand of a master, we meet with calcareous earth, which continues to the aqueducts, distant six miles from that city, and which are a prodigy of art. They consist of a large and magnificent bridge, of the astonishing length of two miles, and of a proportionate breadth. Within this bridge runs a wide canal, brought from a mountain at the distance of twenty-six miles, which, passing through subterranean conduits, skirts the side of the hill, and descends to Caserta, near the Royal Gardens. As the neighbouring mountains abound in calcareous stone, I was not surprized to find the pavement of the bridge formed of that stone; but it somewhat excited my attention when I perceived that the remainder of the edifice was constructed with volcanic tufa, in which are mixed some pieces of enamel. Sir William Hamilton has told us, that in the environs of Caserta, below a stratum of vegetable earth four or five feet in thickness, we meet with cinders, pumices, and fragments of lava; and that, on digging near the foundations of the above-mentioned aqueducts, volcanic earths are discovered. I therefore first conjectured that the tufa had been procured from these subterranean places; an opinion in which I was confirmed by observing that the whole country round was calcareous, not excepting the highest mountains, which were, nearly all, of the same contexture and colour with the chains of hills between Naples and Loretto. One of the inhabitants of this part of the country, however, assured me that this tufa was dug from a plain, about a mile distant to the north, called the *Valley of Metelona*, of which I was convinced, on repairing to the spot. This tufa, in several places, lies in heaps on each side of the public road, principally near the *Taverna*, where we find the excavations, not within but above the ground, which have in part supplied materials for these aqueducts. This tufa is extremely porous, and being immersed in water attracts it forcibly, and with a slightly hissing sound, as is the case with other bibacious bodies. Like tufas in general, it has a moderate weight and consistence, is rough to the touch, and inclines to a yellow colour. But on a more minute examination, it discovers its original, and is found to be composed of a mixture of small fragments of pumice, and any piece of it detached from the mass will be found to contain fragments of that stone. It appears as if composed of small threads extended lengthwise, which viewed with the lens are found to be slender filaments, extremely friable, and generally parallel to each other. It contains many cavities, within which the pumice appears changed into vitreous balls; we likewise find little globes of pumice, which have an external vitreous coat, but which, within, have preserved their fibrous nature :



vial enterprize, both from the difficulty of the way, and the distance; as from Catania, whence it is usual to set out, it is thirty miles to the summit of Etna. On such a journey, likewise, we have to pass through three different climates; whereas to go from Naples to Vesuvius should be rather called an excursion than a journey. We find also little difference between the temperature of the air at the bottom of this latter mountain, and that of its summit. Notwithstanding these difficulties, however, the gigantic majesty of the Sicilian volcano, its sublime elevation, and the extensive, varied, and grand prospects its summit presents, have induced the curious, in every age, to ascend and examine it; and not a few have transmitted to posterity the observations they have made during their arduous journey.

These examples would alone have strongly excited me to make the same journey, and similar researches; but I had also a still more powerful incentive in the undertaking in which I had engaged to travel through the Two Sicilies, in order to make observations on the volcanos, among which Etna must principally claim my attention, as being the largest and most stupendous of all that are, at present, in a state of conflagration on the surface of the globe. I was, likewise, induced to believe that, notwithstanding so many journeys to this mountain have already appeared, I might still publish mine; and that for several reasons. First, because I flatter myself that I shall be able to state some observations which will be, in part at least, new to the reader; secondly, because I shall thus have an opportunity to examine many things related by the travellers who have preceded me, which do not always appear to bear the stamp of truth; and lastly, because my remarks may furnish subjects for useful discussion.

I took my departure from Messina for Catania, a distance of sixty miles by sea, in a small vessel, coasting close upon the land all the way, to examine the shore. On the first of September I landed at the distance of fifteen miles from Messina, on a part of the shore which forms there a head-land, where mariners are accustomed sometimes to make a short stay. The shore here was entirely of calcareous earth, except some pieces of scattered detached lava. The latter production excited in me some doubts whether the explosions of Etna had ever reached to so great a distance; but the mariners who were with me assured me, that these pieces of lava had been brought from the shore of Catania by vessels who had taken them in as ballast, and left them here when they had no farther occasion for them, in consequence of having taken in other lading. Of the truth of this account I was afterwards satisfied, as I found this lava perfectly similar to that in the neighbourhood of Catania.

The real eruptions of this volcano begin first to appear, in the form of rocks of different elevations, which overhang the sea, at the distance of thirty-seven miles from Messina, on the way to Catania; and at the same distance Etna is faintly seen to smoke, and majestically raises its head above the other mountains of Sicily. We had a clear view of it, the sky being free from clouds; and I began to entertain a hope that I should be able to visit its highest summit, since it was not, as it frequently is, covered with snow.

Before we arrived at Catania, I landed at several places, to examine the shore, which is entirely formed of lava. I was particularly attentive to its course and changeable structure. The greater part of the lavas proceed in a right line from the body of Mount Etna, with various inclinations to the level of the sea; and many of them, having been broken by the violent shocks of the waves, exhibit their various stratification, and show the different epochs in which they have flowed, by the difference of their strata, and the coatings of vegetable earth more or less thick interspersed between those strata.

All these lavas, at least those which I examined, are similar with respect to their base, as they all derive their origin from the horn-stone, and all contain within them felspar-crystals.

I employed two days in this coasting voyage from Messina to Catania. The materials of which the latter city is built are such as might be expected in a volcanized country where stones of any other than a volcanic nature are not to be found but at a considerable distance. The edifices, both public and private, and even the walls of the city, are principally of lava; which has furnished materials not only for the modern Catania, but also for that more ancient city, which was entirely destroyed by an earthquake in the year 1693; at least its ruins when dug up have all been found to consist of lava. We learn likewise from observations anterior to that fatal period, that lava has been met with under its foundations on the occasion of digging for wells*; nor is it possible for us to say to what depth the roots of the Etnean eruptions extend. If we only take a view of the surface of the territory of Catania, we every where meet with immense accumulations of lava, among which the most conspicuous are the remains of that torrent which poured from one of the sides of Etna in 1669, inundated, with wide-spreading ruin, a space of fourteen miles in length, and nearly four in breadth rose over the walls of Catania, burying under it a part of the city and at length precipitated itself into the sea.

It would be a superfluous labour were I to proceed to give a long and minute description of this torrent of lava, which has been already so amply described by Mr. Brydone†, Count Borch†, Sir William Hamilton§, and Riedesel||; though I cannot say that the relations of four travellers, who repeat the same things after each other, were much wanted; since our illustrious countryman, the Italian Alphonfus Borelli, who was present at the time when this dreadful torrent of fire burst forth, wrote a work expressly to describe it¶. It appears to me preferable to present the reader with the view, with some

* Borelli, ubi sup.

† Tour through Sicily.

‡ Lettres sur la Sicile.

§ Campi Phlegreæ.

|| Travels in Sicily.

¶ Mr. Brydone is the only one of these travellers who mentions Borelli. He cites four observations from him; but perverts them, to give them more an air of the marvellous.

He says, first, that according to the testimony of Borelli, "after the most violent struggles and shakings of the whole island, when the lava at last burst through, it sprang up into the air to the height of sixty palms."

Mr. Brydone I hope will pardon me, when I tell him that Borelli, here, certainly, only speaks of some local shocks, and tremblings of certain places in the vicinity of the volcano, and by no means of a shaking felt over the whole island. As for the lava springing up into the air to the height of sixty palms, there is not a word about it in the whole book.

Mr. Brydone, likewise, makes Borelli say, that "for many weeks the sun did not appear, and the day seemed to be changed into night."

But all we find in Borelli's account, relative to this darkness, is, that "on the 8th of March, an hour before sun-set, the air, in the suburb of Pidara, and some other neighbouring places, became somewhat thick and dark, with a darkness similar to that which is caused by some partial eclipses of the sun."

The two other passages, which I omit for the sake of brevity, are perverted.

Mr. Brydone, indeed, through his whole journey to Etna has sufficiently shewn his attachment to the marvellous, and, where that has failed him, has had recourse to the aid of his playful fancy to furnish him with extravagant, though ingenious, inventions of the ridiculous kind. The story of the veil of St. Agatha is an example; which veil, according to him, the people of Catania consider as an infallible remedy against volcanos, but which at the time of a great eruption "seemed to have lost its virtue; the torrent bursting over the walls, and sweeping away the image of every saint that was placed there to oppose it." But would it not have been more commendable to have furnished his readers with real information, instead of filling so many pages with these trivial and insipid pleasantries? In fact, after having read his five letters on Etna, what idea do they enable us to form of the nature of this mountain?

some improvement, which this celebrated physician of Naples caused to be taken on the spot at the time, and which in the most natural manner represents this river of fire, such as it appeared at its beginning, during its progress, and at its end; it will likewise render much more intelligible several particulars of which I propose hereafter to treat.

Having mentioned these travellers, I shall make some observations on what has been said by Count Borch relative to the changes that have taken place in the lava of 1669, and those of some other eruptions preceding and posterior to that time. These changes consist in the vegetable earth which begins to appear on them, generated in part from the de-composition of the lava, and in part from the destruction of the plants, which, after a certain time, are produced upon it. From the quantity of this earth he deduces a rule to judge of the age of the lava; which he endeavours to prove by examples of different Etnean lavas, of various epochs, which are covered with more or less of this earth in proportion as they are more or less ancient. Thus, a lava produced by an eruption in 1157, when he examined it in December 1776, had a coating of earth twelve inches thick; another which had flowed in 1329, had one of eight inches; on that of 1669, was found more than one inch; while the most recent, that of 1766, was entirely destitute of such earth. Whence he concludes, that from the antiquity of the lavas, ascertained by the quantity of earth with which they are covered, may be deduced the antiquity of the world.

As this argument is certainly somewhat specious, and has been employed by others, it merits to be discussed. We undoubtedly know from repeated observations, that lavas, after a series of years, are invested with a stratum of earth proper for vegetation; and the fact has already been proved in this work: nor can it be denied that this earth is originally produced by the decomposition of the lavas, and that of the plants which have taken root upon it. The same may be observed in mountains not volcanized, the stones of which, (at least very frequently,) being long exposed to the action of the air and seasons, are resolved into an earth proper for the growth of vegetables. It would not, therefore, admit of a doubt that the more ancient lavas must afford a greater quantity of earth than those of more recent date, were every exterior circumstance equal; were they all of the same consistence and qualities, and all equally affected by the fire. But how greatly they differ in these respects we have already seen, and shall see still more in the progress of this work. Such differences, therefore, must render the argument of Count Borch extremely inconclusive; since a lava of an earlier age may have much less earth than one of later date; a circumstance which the Chevalier Gioeni told me he had frequently observed in several of the lavas of Etna.

Among the lavas adduced by Count Borch, in favour of his hypothesis, is that which flowed in 1329, which when he examined it, that is four hundred and forty-seven years after its eruption was covered with eight inches of earth. Yet the lava of the Arso, in Ischia, which rushed into the sea in 1302, when I saw it in 1788, still preserved in every part its hardness and sterility †.

It appears, likewise, extraordinary, that this writer should not have noticed the remains of another current of lava near Catania, which has been employed for two thousand

I do not mean, by what I have said, indiscriminately to condemn the whole work of Mr. Brydone. His Tour frequently contains facts and observations well deserving attention. It is elegantly written, and the author was well acquainted with the secret of exciting our curiosity, and rendering his narrative interesting; though frequently, with that kind of interest which seems more suitable to romance than to authentic history.

† Chap. V.

years as materials for buildings, and which retains such hardness, that where the labour of the cultivator has not been exerted it still continues entirely sterile.

With respect to the lava of 1669, I cannot conceive how the Count could attribute to it an inch or more of earth, since it is entirely destitute of it. Were this the fact, the surface of the lava must at least, in some few places, exhibit some blades of grass, or small plants, as a stratum of earth an inch thick would be sufficient to nourish them; but we find it, on the contrary, destitute of every vegetable, except a few lichens, which we know will take root and grow on the hardest bodies, and such as entirely resist all effect of the air, as quartzes, and even on the smooth and slippery surface of vitreous substances. The Count, very possibly, examined this lava in low hollow places, into which the rain-water had drained, and brought down with it some particles of earth, that might have formed a thin stratum*.

Before I travelled into Sicily, I had read the eulogium bestowed on the Prince of Biscaris, by Count Borch, among other reasons, because he had exerted himself in attempts to change the face of the lava of 1669, and transform the ungrateful soil into a fruitful garden. When I arrived in the island, I admired the effect of human art. In many places the hardest lava had been opened by the force of mines; while in others it had been broken into extremely minute fragments, into which, when collected in certain receptacles, several kinds of useful plants had been inserted: but, unfortunately, they always perished, though they were repeatedly planted. Some few I found living, as here and there a pomegranate or an almond tree; but these were extremely weak and languid, though the broken lava among which they had taken root was mixed with vegetable earth. A species of the Indian fig† alone thrived and flourished; but it is well known that this shrub delights in lavas, and that it will take root, grow to a considerable height, and bear fruit plentifully, on the most sterile. In the course of this work I shall have occasion to treat more at length on this subject. At present there only remains a large pond which has been dug in the lava of a considerable depth, and communicating with the water of the sea, in which are preserved different kinds of fish.

After having, for a considerable time, examined the environs of Catania, assisted by the Chevalier Gioeni, to whom I owe the most lively and sincere gratitude for numerous favours, I set out for Mount Etna, on the morning of the 3d of September, accompanied, among others, by Carmelo Pugliesi, and Dominico Mazzagaglia, two guides extremely well acquainted with the roads. I performed the greater part of the journey on foot, only riding when I found myself fatigued. I think it scarcely necessary to mention, what has been so often repeated by travellers, and therefore must be so well known, that the lower region of Mount Etna, which extends through twelve miles of the ascent towards the summit, is incredibly abundant in pastures and fruit trees of every kind‡.

It is well known that this fertility is to be ascribed to the lava, which, softened by length of time, has produced a most fertile soil, thus compensating past calamity by pre-

* With respect to the uncertainty and fallacy of any calculations deduced from the greater or less quantity of vegetable earth which may cover lavas, the reader may consult the work of M. Dolomieu above cited.

† *Cactus opuntia*. Linn.

‡ The fertility of this region has been celebrated by the greater part of those authors who have written concerning Etna; among which the most distinguished are Strabo, and Fazello, but above all Peter Bembo, who, after having visited the mountain, composed an ingenious dialogue on the subject. It may excite some surprise, that, after so many descriptions of this region, and after Borelli, above a century before, had thought such a description superfluous, Mr. Brydone should imagine it worth while once more to recount the prodigies of this fertile soil.

sent fruitfulness. To this, however, the industry of man and arts of agriculture have not a little contributed; as well as the corruption and decomposition of vegetables, which have so great a share in the fructification of the earth. These lavas, however, in some places, still manifest their native wildness, rising above the useful soil, in craggy points and tumours, or discovering their naked sides on the banks of rapid torrents. On some declivities, where the earth has but little depth, we find trees, the roots of which not having been able to penetrate the unyielding lava, have turned aside, and extended horizontally along the surface of the soil. Whence it evidently appears that the fertility of the inferior region depends entirely on a crust of earth, more or less thick, without which the same barrenness must take place, which, it cannot be doubted, once prevailed.

At ten in the morning, I arrived at the village of Nicolosi, (Plate I.) near Monte Rosso, which formerly was a plain, when in 1669, a new vortex opened, and disgorged a dreadful torrent of lava, which poured headlong down until it reached the sea, where it formed a kind of promontory (Y). It would have been a great omission not to have visited this mountain, though it lies a little out of the direct road to Etna. Besides the memorable eruption which has been mentioned more than once, other objects relative to it, which I had here an opportunity of examining on the spot, attracted my attention. Among these was that quantity of black sand which was thrown out in that eruption from the new volcanic mouth, which still remains, and covers an extensive plain beyond Nicolosi, where once verdant trees flourished; some of which still preserve remains of life, and raise their leafy branches above the changing sand. This sand, which covers a circuit of two miles round Monte Rosso, when it was first ejected from the vortex, extended over a space of fifteen miles; and covered the ground to such a height, that the vines and shrubs were entirely buried. Some of the finer particles of it were carried by the southerly wind even to Calabria, where they fell thick in many places, as we are informed by Borelli.

As I approached the Mountain, I found the depth of the sand greater, and it became a considerable impediment in my way, as my leg frequently sunk into it up to the knee. It is well known that this mountain is forked, being so formed by the eruption, at which time it was called by the country people, Monte della Ruina (the Mountain of Ruin), and afterwards Monte Rosso (the Red Mountain), probably because some parts of it appeared of that colour. Borelli tells us, that its circumference at the base does not exceed two miles, and that its perpendicular height is not more than one hundred and fifty paces; while Sir William Hamilton estimates its height at a mile, and its circuit at least at three. From the observations I have been able to make, I must prefer the estimate of the Italian mathematician to that of Sir William.

The accurate accounts of the same Borelli inform us, that the gulf whence this eruption issued opened on the 11th of March, 1669, about the time of the setting of the sun; that the lava burst forth that same night; and that, on the 13th of the same month, a shower of scorix and sand began to be cast into the air, which continued three months, and formed Monte Rosso. From among a hundred or more mountains which rear their heads on the sides of Mount Etna, this is the only one with the history of the formation of which we are acquainted*.

* Sir William Hamilton, in his journey to Etna, speaking of this eruption, cites an account of it by the Earl of Winchelsea, who was present at the time, but which is more marvellous than true. He did not approach the place, but only beheld the eruption from the towers of Catania. He tells us, that the fire divided one mountain into two; and that it was composed, as were the stones and ashes vomited out (besides other principles), of mercury, lead, bronze, and every other kind of metal, which alone would be sufficient to deprive this account of all credit.

On examining this bifurcated mountain at the top, on the sides, and at the bottom, especially in those places where the rain-waters had produced furrows and deep excavations, I found it composed of different scoriæ and sand, that is to say, lava that had undergone various modifications, and from that same lava which has formed the immense current, as sufficiently appears from the identity of their principles. The base of this lava is the horn-stone: it is of a grey colour, dry in its fractures, rough to the touch, of a grain moderately fine, gives sparks with steel, and sounds when struck. It serves as a matrix to a great number of felt-spathose and shoerlaceous crystallizations*. If from this lava we turn our eyes to scoriæ, of which Monte Rosso is principally composed, we observe the same kind of base, containing, in like manner, shoerls and felt-spars; except only that the scoriæ have more lightness and friability, from their greater number of pores, which gives them the resemblance of certain sponges; besides that they have a kind of vitreous appearance, and that the pieces on the surface are scabrous; differences which arise from the scoriæ having been more changed than the lavas by the activity of the fire, and that of the elastic gases.

When the volcano threw up a deluge of scoriæ, a great number of them must clash, be broken, and reduced to powder; thus producing showers of sand: whence the sand that covers the environs of Monte Rosso, which, from the examinations I have made, I find to consist only of triturated scoriæ. The lava of Monte Rosso, the scoriæ, and the sand consist, therefore, of the same component parts.

M. Dolomieu having found, at Monte Rosso, great numbers of detached shoerls, of the same kind with those which enter into the lava of that current; that is to say, black, lamellated, flat, of a hexaedrous prismatic form, and, for the most part, terminated by a dihedrous pyramid, he thought, with apparent reason, that they at first entered into the body of the lava; he therefore endeavoured to explain in what manner they were separated from it; having recourse to the sulphur, which, according to him, had scorified the lava, but had not been able to produce the same effect on the shoerls, from the small quantity of iron they contain, which, consequently, remained free and detached.

It is incredible how great a number of these loose shoerls are to be met with about Monte Rosso, and particularly on its top. When I was there, the sun shining clear, I saw them, in several places, sparkling on the ground, and I had only slightly to move the scoriæ and sand, to bring them to light by hundreds. They were exactly such as they are described by the French naturalist. I formed a design to ascertain the truth of the theory by which he has endeavoured to explain the separation of the shoerls from the lava, and when I returned to Pavia I made several experiments for that purpose. As his hypothesis was that it proceeded from the shoerls containing a less quantity of iron than the lava, it was to be expected that the magnetic needle would be less affected by the former than the latter. From the experiments I made both with the lava, or more properly speaking, its base, and with the detached shoerls, I perceived that the needle was attracted by the former at the distance of one fourth, one third, and even one half of a line, while the attractive force of the detached shoerls acted on it at the distance of one fourth of a line, one third of a line, and a whole line; one shoerl even gave manifest signs of attraction at the distance of a line and a half. It is scarcely necessary to remark, that in such experiments every accessory circumstance ought to be equal; that is, the pieces of lava ought to be equal in size, and of the same configuration with the

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detached shoerls. These experiments prevented my adopting the theory in question, since they shewed that the martial principle was much more abundant in the shoerls than in their base; contrary to the hypothesis of M. Dolomieu. Reflecting, however, on the phenomenon of the isolated shoerls, another mode of explanation occurred to me, which I shall here submit to the judgment of the learned reader.

Experience has shewn that the volcanic fire which melted the lava was incapable of melting the shoerls, as they are found within it as completely crystallized, with angles as acute, and of the same lustre, as those which are detached among the sand and scorizæ. As they are therefore so refractory to the fire, and are, besides, of a different specific gravity from the lava, it may reasonably be supposed that, when the latter was melted, and in the eruption of 1669, forced by elastic vapours to a prodigious height, where it was separated into small particles, numbers of shoerls were detached from it, and fell, isolated, partly within the crater, and partly around it. As these showers of fiery lava continued three months, the number of shoerls which thus fell detached must have been very considerable, as we, in fact, find them at present.

The results produced by the furnace on these shoerls when detached, are very different from those they exhibit when incorporated with the lava. In the former case they are infusible, though they should remain there several days. When minutely triturated, indeed, their particles will conglomerate together, but without forming a compact and vitreous body. The fusion, on the contrary, is perfect in those which are enveloped in the body of the lava. Monte Rosso, quite to the sea, abounds in such shoerls. A few hours in the furnace are sufficient to change them into a shining, compact, and extremely hard enamel. Some lineament of the felspars contained in the lava always remains; but it is impossible to discover any traces of the shoerls, they having formed, with their base, which has passed into the state of enamel, a similar and homogeneous body. The base of this lava, which, as we have said, is of horn-stone, has therefore acted as a flux on the shoerls.

This experiment throws light on another subject of some importance, already mentioned in Chap. V. which treats of Ischia; where speaking of the fusion obtained in the furnace of some felspars, though detached, of some of the lavas of that island, I observed that it is not always true that the felspars are more difficult to fuse than shoerls, as is generally imagined. I then alluded to what is here detailed, though this is not the only place where that truth will be proved.

I shall make another remark or two on these shoerls. They do not belong, exclusively, to this lava of Monte Rosso, but are found in many others of Mount Etna.

I do not know that any attempt has been hitherto made to analyse them chemically. I therefore undertook to ascertain their component principles by the process with asbestine earth invented by Bergman. From one hundred decimastic pounds of these shoerls I obtained the following result:

		Pounds.
Silex	- -	34.5
Lime	- -	18.7
Iron	- -	7.6
Alum	- -	12.4
Magnesia	- -	11.0
		<hr/>
	Sum	85.2 *

* It must be remarked, that besides the almost irreparable loss in manipulation, and that of the water pre-existing in the shoerls, the lime is here deprived of the acid with which it was before combined.

Monte Rosso (the Red Mountain), as we have already said, has received this name from some parts of it being tinged with that colour, though there are others which are white, and others yellow. All these parts of it are found to be more or less decomposed, and, in general, they are only scoriæ. It seems indubitable that these colours are produced by iron, changed or modified by acids.

Some of these scoriæ, which have not been affected by the action of the acids, exhibit a remarkable phenomenon. They are covered with a thin coat of pellucid glass, and seem as if a sheet of water had flowed over them and been suddenly frozen. This appearance, which in the neighbourhood of any other volcano would not merit a moment's regard, is remarkable at Etna, because we there meet with no vitrifications; M. Dolomieu, whose industry and accuracy are so great in all his researches, having found only one piece, and that of uncertain origin.

This vitreous integument has very probably been occasioned by a more energetic action of the fire.

After I had staid some time at Monte Rosso, equally to my instruction and amusement, and had viewed with admiration the trunk and branches of that extensive river of lava, which issuing from the root of the mountain, and inundating an immense tract of country, had rushed into the sea, I took my way towards the monastery of St. Niccolo dell' Arena, a pleasing resting-place for travellers who visit Etna, where I arrived about noon on the 3d of September. This very ancient edifice, founded on the lava, was the habitation of a number of Benedictine monks, who about two hundred years ago, in consequence of the devastation occasioned by the lava, were obliged to abandon it, and retire to Catania. The injuries it has at different times suffered are recorded in various inscriptions still remaining, which commemorate ruinous earthquakes, torrents of lava, and showers of sand and ashes, by which it has been damaged and almost destroyed; with the dates of the different repairs. The environs of this place would still be entirely covered with the black sand thrown up by Monte Rosso in 1669, were it not that this sand becomes more easily changed into vegetable earth than the lava; and, for many years, has been planted with more than one extensive vineyard. After taking a slight refreshment in this hospitable place, I continued my journey towards the summit of Etna, proceeding over ancient lavas, which were still every where unproductive of any kind of vegetable.

About three miles above San Niccolo dell' Arena, the lower region of Etna ends, and the middle begins, which extends for ten miles, or nearly that distance, in a direct line, up the mountain. It is, with great propriety, called *selvosa*, or the woody region; since it abounds with aged oaks, beeches, firs, and pines. The soil of this region is a vegetable earth, generated by the decomposition of the lavas, and similar to that in the lower region; which lavas may not only every where be found on digging a little depth into the ground, but display themselves uncovered in many places, as we have already remarked of the lavas of the other region. The middle region is celebrated for its luxuriant vegetation and its lofty trees; but it appeared to me scarcely to deserve this celebrity. The trees (at least in the places where I noticed them), and especially the oaks, which form the greatest part of this woody zone, are low, and as I may say stunted in their growth; and would lose much when compared with those of other countries. The beeches, which grow only on the upper extremity of the zone, would appear mere pigmies, if placed beside those which rear their lofty heads on the Apennines and the Alps. This, I am of opinion, is to be attributed to the little depth of the earth proper for vegetation. The woods and verdure of these two regions, the inferior and the middle, are recorded by the greater part of the writers of antiquity; so that the commence-

sent fruitfulness. To this, however, the industry of man and arts of agriculture have not a little contributed; as well as the corruption and decomposition of vegetables, which have so great a share in the fructification of the earth. These lavas, however, in some places, still manifest their native wildness, rising above the useful soil, in craggy points and tumours, or discovering their naked sides on the banks of rapid torrents. On some declivities, where the earth has but little depth, we find trees, the roots of which not having been able to penetrate the unyielding lava, have turned aside, and extended horizontally along the surface of the soil. Whence it evidently appears that the fertility of the inferior region depends entirely on a crust of earth, more or less thick, without which the same barrenness must take place, which, it cannot be doubted, once prevailed.

At ten in the morning, I arrived at the village of Nicolosi, (Plate I.) near Monte Rosso, which formerly was a plain, when in 1669, a new vortex opened, and disgorged a dreadful torrent of lava, which poured headlong down until it reached the sea, where it formed a kind of promontory (Y). It would have been a great omission not to have visited this mountain, though it lies a little out of the direct road to Etna. Besides the memorable eruption which has been mentioned more than once, other objects relative to it, which I had here an opportunity of examining on the spot, attracted my attention. Among these was that quantity of black sand which was thrown out in that eruption from the new volcanic mouth, which still remains, and covers an extensive plain beyond Nicolosi, where once verdant trees flourished; some of which still preserve remains of life, and raise their leafy branches above the changing sand. This sand, which covers a circuit of two miles round Monte Rosso, when it was first ejected from the vortex, extended over a space of fifteen miles; and covered the ground to such a height, that the vines and shrubs were entirely buried. Some of the finer particles of it were carried by the southerly wind even to Calabria, where they fell thick in many places, as we are informed by Borelli.

As I approached the Mountain, I found the depth of the sand greater, and it became a considerable impediment in my way, as my leg frequently sunk into it up to the knee. It is well known that this mountain is forked, being so formed by the eruption, at which time it was called by the country people, Monte della Ruina (the Mountain of Ruin), and afterwards Monte Rosso (the Red Mountain), probably because some parts of it appeared of that colour. Borelli tells us, that its circumference at the base does not exceed two miles, and that its perpendicular height is not more than one hundred and fifty paces; while Sir William Hamilton estimates its height at a mile, and its circuit at least at three. From the observations I have been able to make, I must prefer the estimate of the Italian mathematician to that of Sir William.

The accurate accounts of the same Borelli inform us, that the gulf whence this eruption issued opened on the 11th of March, 1669, about the time of the setting of the sun; that the lava burst forth that same night; and that, on the 13th of the same month, a shower of scoriæ and sand began to be cast into the air, which continued three months, and formed Monte Rosso. From among a hundred or more mountains which rear their heads on the sides of Mount Etna, this is the only one with the history of the formation of which we are acquainted*.

* Sir William Hamilton, in his journey to Etna, speaking of this eruption, cites an account of it by the Earl of Winchelsea, who was present at the time, but which is more marvellous than true. He did not approach the place, but only beheld the eruption from the towers of Catania. He tells us, that the fire divided one mountain into two; and that it was composed, as were the stones and ashes vomited out (besides other principles), of mercury, lead, bronze, and every other kind of metal, which alone would be sufficient to deprive this account of all credit.

On examining this bifurcated mountain at the top, on the sides, and at the bottom, especially in those places where the rain-waters had produced furrows and deep excavations, I found it composed of different scoriæ and sand, that is to say, lava that had undergone various modifications, and from that same lava which has formed the immense current, as sufficiently appears from the identity of their principles. The base of this lava is the horn-stone; it is of a grey colour, dry in its fractures, rough to the touch, of a grain moderately fine, gives sparks with steel, and sounds when struck. It serves as a matrix to a great number of felt-spathose and floerlaceous crystallizations*. If from this lava we turn our eyes to scoriæ, of which Monte Rosso is principally composed, we observe the same kind of base, containing, in like manner, shoerls and felt-spars; except only that the scoriæ have more lightness and friability, from their greater number of pores, which gives them the resemblance of certain sponges; besides that they have a kind of vitreous appearance, and that the pieces on the surface are scabrous; differences which arise from the scoriæ having been more changed than the lavas by the activity of the fire, and that of the elastic gases.

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ment of this vegetation appears to be lost^d in the obscurity of time. How much more ancient then, must have been the date of the flowing of those lavas to the slow decomposition of which the vegetation owes its origin!

Before the day closed, I reached the celebrated Grotta delle Capre, but it only afforded us a wretched couch of leaves and straw. It is, however, the only place where the traveller can rest who wishes early in the morning to reach the top of Etna, which is eight miles distant. It is one of those caverns which we frequently meet with in the middle of the lavas of that immense mountain; and a little higher begins the last and sublime region. Here I stopped to pass the night; but, before I endeavoured to compose myself to sleep, I found it very agreeable to warm myself by a fire made with some branches cut from the neighbouring trees; as, at this height, Reaumur's thermometer stood at $8\frac{1}{2}$ degrees above the freezing point (51° of Fahrenheit); while in the morning of the same day, at Catania, it had been at 23° (72 of Fahrenheit). Casting my eye around the grotto, I perceived the names of several travellers; some of them names of eminence, with the dates when they had been here, cut on the trunks of several of the oaks; but I must confess that I felt some little indignation on remarking that among all these there was not one Italian name.

I shall conclude this chapter with some remarks relative to an object that has not, to my knowledge, been attended to by any other traveller. We have been told that the grotto is called La Grotta delle Capre (the grotto of the goats) because goats are used to be shut in it, in rainy weather; that it is hollowed in the lava in the shape of a furnace; that it is surrounded with ancient and venerable oaks; that leaves, there, compose the beds of travellers; but no one has yet described the qualities of the lava of which it is formed. Without pretending perfectly to supply this omission, I shall say that the lava here is of a horn-stone base; that it is of an earthy texture; and that, though it abounds with pores and vacuities, it has considerable hardness, it contains some shoerls, and likewise two kinds of felspars; some of a flat figure, which are extremely brilliant in the fractures; the others of an irregular shape, with little lustre, and which manifest a degree of calcination, though without any indication of fusion. A few other thin small stones are interspersed in them, which from their hardness and green colour I incline to think are chrysolites; as it is known that these noble stones are found in many of the lavas of Etna.

This lava in the furnace is transformed into an enamel full of bubbles; and as it then changes to a blacker colour, the white felspars become more conspicuous. The magnetic needle is acted upon by it at the distance of a line and a half. The other lavas of the vicinity do not differ from that of the Grotta delle Capre, or rather they are a continuation of the same, even where they are covered by a stratum of earth and a multitude of trees. It is therefore evident, that this grotto has been formed from time immemorial; and that it is not the work of the rain-water, but has been produced by the action of the elastic gases of the lavas when they were fluid, which have generated in them this hollow place, as they have elsewhere many others, of which we may have occasion hereafter to treat.

CHAP. VIII.—CONTINUATION OF THE JOURNEY TO ETNA.

Upper region of Etna—destitute of vegetables.—Its lavas.—View of the rising sun from those heights.—Lavas which issued from the principal crater of Etna in the months of July and October 1787.—Difficulty of crossing those lavas to arrive at the summit of Etna.—As yet burning eleven months and more, some places not yet extinguished.—Other difficulties.—Arrival at the top of Etna.—Clear view of the great crater, circumference of the great crater, with other particulars.—Etna a bifurcated mountain.—Another smaller crater.—Obstacles usually met with in a journey to Mount Etna.—Comparison of what the author observed within the crater of Mount Etna, with the observations before made by M. Reidel, Sir William Hamilton Brydone, and Borch.—Physical causes of the changes in volcanic craters.—Ancient accounts of these changes.—Large masses have sometimes fallen from the top of Etna into the crater.—No sensible diminution of the height of this mountain in the times of which we have any account.—Various phenomena observable in the smoke which at different times has exhaled from the Etnean furnace.—No inconvenience experienced by the author from the thinness of the air on the top of Etna. The effect of this different on different individuals.—Extensive and admirable prospect from the summit of Etna.

THREE hours before day I, with my companions, left the Grotta delle Capre, which had afforded us a welcome asylum, though our bed was not of the softest, as it consisted only of a few oak leaves scattered over the floor of lava. I continued my journey towards the summit of Etna; and the clearness of the sky induced me to hope that it would continue the same during the approaching day, that I might enjoy the extensive and sublime prospect from the top of this lofty mountain, which is usually involved in clouds. I soon left the middle region, and entered the upper one, which is entirely destitute of vegetation, except a few bushes very thinly scattered. The light of several torches which were carried before us enabled me to observe the nature of the ground over which we passed, and to ascertain, from such experiments as I was able to make, that our road lay over lavas either perfectly the same with, or analogous to, those in which the Grotta delle Capre is hollowed.

We had arrived at within about four miles of the borders of the great crater, when the dawn of day began to disperse the darkness of night. Faint gleams of a whitish light were succeeded by the ruddy hues of aurora; and soon after the sun rose above the horizon, turbid at first and dimmed by mists, but his rays insensibly became more clear and resplendent. These gradations of the rising day are no where to be viewed with such precision and delight, as from the lofty height we had reached, which was not far from the most elevated point of Etna. Here likewise I began to perceive the effects of the eruption of Etna which took place in July 1787, and which has been so accurately described by the Chevalier Gioeni*. These were visible in a coating of black scoriæ, at first thin, but which became gradually thicker as I approached the summit of the mountain, till it composed a stratum of several palms in thickness. Over these scoriæ I was obliged to proceed, not without considerable difficulty and fatigue, as my leg at every step sunk deep into it. The figure of these scoriæ, the smallest of which are about a line or somewhat less in diameter, is very irregular. Externally they have

* His account of this eruption was printed at Catania in 1787. There is likewise a French translation at the end of the *Catalogue Raisonné* of M. Dolomieu.

the appearance of scoriæ of iron; and when broken, are found full of small cavities, which are almost all spherical, or nearly of that figure. They are therefore light and friable; two qualities which are almost always inseparable from scoriæ. This great number of cavities is an evident proof of the quantity and vigorous action of the elastic fluids, which in this eruption, imprisoned in the liquid matter within the crater, dilated it on every side, seeking to extricate themselves; and forced it, in scoriaceous particles, to various heights and distances, according to the respective weights of those particles. The most attentive eye cannot discover in them the smallest shoerl; either because these stones have been perfectly fused, and with the lava passed into one homogeneous consistence, or because they never existed in it. Some linear felspars are however found, which by their splendour, semi-transparency, and solidity, shew that they have suffered no injury from the fire. When these scoriæ are pulverized, they become extremely black; but retain the dryness and scabrous contexture which they had when entire. They abound in iron, and in consequence the dust produced by pulverizing them copiously adheres to the point of a magnetized knife; and a small piece of these scoriæ will put the magnetic needle in motion at the distance of two lines.

In the midst of this immense quantity of scoriæ, I in several places met with some substances of a spherical figure, which, like the lava, were at first small, but increased in size as I approached the summit of the mountain. These were originally particles of lava ejected from the crater in the eruption before mentioned, which assumed a spherical figure when they were congealed by the coldness of the air. On examining them, I found them in their qualities perfectly to resemble the scoriæ, and to possess the same magnetism.

Only two miles and a half remained of our journey, when the great laboratory of nature, inclosed within the abysses of Etna, began its astonishing operations. Two white columns of smoke arose from its summit; one, which was the smallest, towards the north-east side of the mountain, and the other towards the north-west. A light wind blowing from the east, they both made a curve towards the west, gradually dilating, until they disappeared in the wide expanse of air. Several streams of smoke, which arose lower down towards the west, followed the two columns. These appearances could not but tend to inspire me with new ardour to prosecute my journey, that I might discover and admire the secrets of this stupendous volcano. The sun, likewise shining in all his splendour, seemed to promise that this day should crown my wishes. But experience taught me that the two miles and a half I had yet to go presented many more obstacles than I could have imagined, and that nothing but the resolution I had formed to complete my design at every hazard could have enabled me to surmount them.

Having proceeded about an hundred paces further, I met with a torrent of lava, which I was obliged to cross to arrive at the smoking summit. My guides informed me that this lava had issued from the mountain in October 1787; and as the account of the *Chevalier Gioeni*, which I have above cited, only mentions the eruption of the month of July of the same year, I shall here give a brief description of it, as it does not seem hitherto to have been described.

This very recent lava extends three miles in length; its breadth is various, in some places being about a quarter of a mile, in others one-third, and in others still more. Its height, or rather depth, is different in different parts; the greatest being, as far as I was able to observe, about eighteen feet, and the least six. Its course is down the west side of the mountain; and, like the other lava which flowed in the July of 1787, it issued immediately from the great crater of Etna. The whole number of the eruptions
of

of this mountain of which we have any record, before and after the Christian æra, is thirty-one; and ten only, as we are informed by Gioeni, including that of which he has given an account, have issued immediately from the highest crater. That which I observed may be the eleventh, unless it should rather be considered as the same with that described by the Sicilian naturalist, since the interval between August and October is a very short intermission of rest for a volcano. The cause of the rarity of the eruptions which issue immediately from the crater, compared with those which disgorge from the sides, seems easily to be assigned. The centre of this volcano is probably at a great depth, and perhaps on a level with the sea. It is therefore much more easy for the matter liquefied by the fire, put in effervescence by the elastic fluids, and impelled on every side from the centre to the circumference, to force its way through one of the sides of the mountain where it finds least resistance, and there form a current, than to be thrown up, notwithstanding the resistance of gravity, from the bottom to so great a height as the highest crater of Etna. It is evident, therefore, that the effervescence in the eruptions of the months of July and October 1787 was extremely violent. The torrent of the month of October is every where covered with scorix, which resemble those ejected in the month of July in their black colour, but differ from them in the great adhesion they have to the lava, in their exterior vitreous appearance, their greater weight, and their hardness, which is so great that they give sparks with steel almost as plentifully as flints. These differences, however, are to be attributed only to accidental combinations of the same substance; the constituent principles of the scorix of this lava not being different from those of the detached scorix mentioned above. Both likewise contain the same felspar lamellæ.

This new current was however extremely difficult, and even dangerous, in the passage. In some places the scorix projected in prominent angles and points, and in others sunk in hollows, or steep declivities; in some, from their fragility and smoothness, they resembled thin plates of ice, and in others they presented vertical and sharp projections. In addition to these difficulties, my guides informed me I should have to pass three places where the lava was still red-hot, though it was now eleven months since it had ceased to flow. These obstacles, however, could not overcome my resolution to surmount them; and I then experienced, as I have frequently done at other times, how much may be effected, in difficulties and dangers like these, by mere physical courage, by the assistance of which we may proceed along the edge of a precipice in safety; while the adventurer who suffers himself to be surprised by a panic fear will be induced cowardly to desist from the enterprize he might have completed. In several places, it is true, the scorix broke under my feet; and in others I slipped, and had nearly fallen into cavities from which I should have been with difficulty extricated. One of the three places pointed out by the guides had likewise, from its extreme heat, proved highly disagreeable; yet at length I surmounted all these obstacles and reached the opposite side, not without making several cursory observations on the places whence those heats originated. Two large clefts, or apertures, in different places appeared in the lava, which there, notwithstanding the clearness of the day, had an obscure redness; and on applying the end of the staff which I used as a support in this difficult journey to one of these, it presently smoked, and immediately after took fire. It was therefore indubitable that this heap of ejected lava still contained within it the active remains of fire, which were more manifest there than in other places, because those matters were there collected in greater quantities.

I had yet to encounter other obstacles. I had to pass that tract which may properly be called the cone of Etna, and which, in a right line, is about a mile or somewhat more

in length. This was extremely steep, and not less rugged, from the accumulated scoriæ which had been heaped upon it in the last eruption, the pieces of which were neither connected together, nor attached to the ground; so that frequently, when I stepped upon one of them, before I could advance my other foot, it gave way, and forcing other pieces before it down the steep declivity, carried me with it, compelling me to take many steps backwards instead of one forwards. To add to this inconvenience, the larger pieces of scoriæ above that on which I had stepped, being deprived of the support of those contiguous to them, came rolling down upon me, not without danger of violently bruising my feet, or breaking my legs. After several ineffectual attempts to proceed, I found the only method to avoid this inconvenience, and continue my journey, was to step only on those larger pieces of scoriæ which, on account of their weight, remained firm; but the length of the way was thus more than doubled, by the circuitous windings it was necessary to make to find such pieces of scoriæ as from their large size were capable of affording a stable support. I employed three hours in passing, or rather dragging myself, to the top of the mountain, partly from being unable to proceed in a right line, and partly from the steepness of the declivity, which obliged me to climb with my hands and feet, sweating and breathless, and under the necessity of stopping at intervals to rest, and recover my strength. How much did I then envy the good fortune of those who had visited Etna before the eruption of 1787, when, as my guides assured me, the journey was far less difficult and laborious!

I was not more than a hundred and fifty paces distant from the vortex of the cone, and already beheld close to me, in all their majesty, the two columns of smoke. Anxious to reach the borders of the stupendous gulf, I summoned the little strength I had remaining to make a last effort, when an unforeseen obstacle for a moment cruelly retarded the completion of my ardent wishes. The volcanic craters, which are still burning more or less, are usually surrounded with hot sulphureous acid steams, which issue from their sides, and rise in the air. From these the summit of Etna is not exempt; but the largest of them rose to the west, and I was on the south-east side. Here likewise four or five streams of smoke arose from a part somewhat lower, and through these it was necessary to pass; since on one side was a dreadful precipice, and on the other so steep a declivity, that I and my companion, from weakness and fatigue, were unable to ascend it; and it was with the utmost difficulty that our two guides made their way up it, notwithstanding they were so much accustomed to such laborious expedition. We continued our journey, therefore, through the midst of the vapours; but though we ran as fast as the ground and our strength would permit, the sulphureous steams with which they were loaded were extremely offensive and prejudicial to respiration, and affected me in particular so much, that for some moments I was deprived of sense; and found by experience how dangerous an undertaking it is to visit volcanic regions infested by such vapours.

Having passed this place, and recovered by degrees my former presence of mind, in less than an hour I arrived at the utmost summit of Etna, and began to discover the edges of the crater; when our guides, who had preceded me at some distance, turned back, and hastening towards me, exclaimed in a kind of transport, that I never could have arrived at a more proper time to discover and observe the internal part of this stupendous volcano. The reader will easily conceive, without my attempting to describe it, how great a pleasure I felt at finding my labours and fatigue at length crowned with such complete success. This pleasure was exalted to a kind of rapture when I had completely reached the spot, and perceived that I might without danger contemplate this amazing spectacle. I sat down near the edge of the crater, and remained there two

hours, to recover my strength after the fatigues I had undergone in my journey. I viewed with astonishment the configuration of the borders, the internal sides, the form of its immense cavern, its bottom, an aperture which appeared in it, the melted matter which boiled within, and the smoke which ascended from it. The whole of this stupendous scene was distinctly displayed before me; and I shall now proceed to give some description of it, though it will only be possible to present the reader with a very feeble image, as the sight alone can enable him to form ideas at all adequate to objects so grand and astonishing.

The upper edges of the crater, to judge by the eye, are about a mile and a half in circuit, and form an oval, the longest diameter of which extends from east to west. As they are in several places broken, and crumbled away in large fragments, they appear as it were indented, and these indentations are a kind of enormous steps, formed of projecting lavas and scorix. The internal sides of the cavern, or crater, are inclined in different angles in different places. To the west their declivity is slight: they are more steep to the north; still more so to the east; and to the south-east, on which side I was, they are almost perpendicular. Notwithstanding this irregularity, however, they form a kind of funnel, large at the top, and narrow at the bottom, as we usually observe in other craters. The sides appear irregularly rugged, and abound with concretions of an orange colour, which at first I took for sulphur, but afterwards found to be the muriate of ammoniac, having been able to gather some pieces of it from the edges of the gulf. The bottom is nearly a horizontal plane, about two-thirds of a mile in circumference. It appears striped with yellow, probably from the above-mentioned salt. In this plain, from the place where I stood, a circular aperture was visible, apparently about five poles in diameter, from which issued the larger column of smoke, which I had seen before I arrived at the summit of Etna. I shall not mention several streams of smoke, which arose like thin clouds from the same bottom, and different places in the sides. The principal column, which at its origin might be about twenty feet in diameter, ascended rapidly in a perpendicular direction while it was within the crater; but when it had risen above the edges, inclined towards the west, from the action of a light wind, and when it had risen higher, dilated into an extended but thin volume. This smoke was white, and being impelled to the side opposite that on which I was, did not prevent my seeing within the aperture; in which I can affirm, I very distinctly perceived a liquid ignited matter, which continually undulated, boiled, and rose and fell, without spreading over the bottom. This certainly was the melted lava which had arisen to that aperture from the bottom of the Etnean gulf.

The favourable circumstance of having this aperture immediately under my view induced me to throw into it some large stones, by rolling them down the steep declivity below me. These stones, which were only large pieces of lava that I had detached from the edges of the crater, bounding down the side, in a few moments fell on the bottom, and those which entered into the aperture, and struck the liquid lava, produced a sound similar to that they would have occasioned had they fallen into a thick tenacious paste. Every stone I thus threw struck against and loosened others in its passage, which fell with it, and in like manner struck and detached others in their way, whence the sounds produced were considerably multiplied. The stones which fell on the bottom rebounded, even when they were very large, and returned a sound different from that I have before described. The bottom cannot therefore be considered as only a thin crust; since, were it not thick and solid, it must have been broken by stones so heavy falling from so great a height.

to me that in all his different excursions to that mountain, he had never had a good fortune similar to mine; and that a month before my arrival he had made a journey to Etna with the Chevalier Dangios, furnished with the necessary instruments to ascertain accurately the height of the mountain; but when they had arrived at the foot of the cone, where they had proposed to begin their operations, they were obliged to return back from the obstacles they met with, which, to say the truth, are constantly more or less small.

Etna rises to a prodigious height above the level of the sea, and its summit is usually covered with snows and ice, and obscured with clouds, except when the lightning flashes and range along the sides. The winds likewise frequently blow with such violence, that persons can scarcely keep their feet, not to mention the acute cold which benumbs the limbs. But the most formidable impediments to the progress of the adventurer who attempt this perilous journey, are the streams of sulphureous vapour which rise from the sides, and the thick clouds of sulphureous smoke which burst forth from the mouth of the volcano, even when not in a state of agitation. It seems as if nature had placed these noxious fumes as a guard to Etna, and other fiery mountains, to prevent the approach of curiosity, and secure her mysterious and wondrous labours from discovery. I should, however, justly incur the reproach of being ungrateful, were I not to acknowledge the generous partiality she appeared to manifest towards me. At the time of my visit the sky was clear, the mountain free from snows, the temperature of the atmosphere not incommodious, the thermometer standing at seven degrees above the freezing point (48° of Fahrenheit), and the wind favouring my design, by driving the smoke of the crater from me, which otherwise would alone have been sufficient to have frustrated all my attempts. The streams of smoke I met with in my way were indeed somewhat troublesome, but they might have been much more so; though, had our guides conducted us by another road, as on my return to Catania I found they might have done, we should have escaped this inconvenience.

It here will not be improper to compare these observations on the crater of Etna with those of Baron Riedesel, Sir William Hamilton, Mr. Brydone, and Count Botta; as such a comparison will shew the great changes which have taken place in this volcano within the space of twenty years; that is, from the time when it was visited by Baron Riedesel in 1767, to that of my journey in 1788. At the time when that traveller made his observations, the crater was enlarged towards the east, with an aperture which now no longer exists. He has not given the measure of its circuit, nor has he mentioned the interior aspect of the crater; probably because he had not seen it, having been, as I imagine, prevented by the quantity of smoke which he tells us constantly ascended from it.

It is worthy of notice, however, that at that time there was not at the bottom of the crater the hard flat surface I have described; since the stones thrown into it did not return the smallest sound. Within the gulf itself was heard a noise similar to that of the waves of the sea which agitated by a tempest, which noise probably proceeded from the lava within the bowels of the mountain, liquefied and in motion. We may hence conceive how easily a volcano may begin to rage on a sudden, though before apparently in a state of complete tranquillity; for if we suppose a superabundant quantity of elastic substances to have been suddenly developed in the liquid lava of Etna, either at the time when Baron Riedesel visited the crater, or when I observed it in a state of tranquillity within the gulf, it must immediately have swelled in every part, bearing against the sides of the caverns in which it was imprisoned, thundered along the cavities, and bursting forth through the sides, have poured out a river of fire.

its violence have been there resisted, it would have rushed up within the crater, until it overflowed its brink, and deluged the sides of the mountains with its torrents.

Sir William Hamilton, on the 26th of October, 1769, arrived at the summit of Etna with great difficulty, on account of the snows he met with in his way, the severity of the atmosphere, the sulphureous vapours, and the violence of the wind. He was unable to view distinctly the lower parts of the crater, being prevented by the great quantity of smoke which issued from it; though when this smoke was sometimes driven away by the wind, he could discover that the crater was shaped like a funnel, diminishing until it ended in a point; and that this funnel was incrustated over with salt and sulphur. The crater was two miles and a half in circumference.

From the time therefore of the journey of Baron Riedesel to that of Sir William Hamilton, the crater must have undergone great changes in its structure; since if the stones that were thrown into it gave no indications to the ear that they struck against any solid body, it is manifest that there must then have been an abyss as well as a funnel; and as the funnel terminated in a point when it was observed by Sir William Hamilton, it is evident that the flat bottom I have described, and which was about two-thirds of a mile in circuit, did not then exist.

The internal sides of the crater, Sir William tells us, were covered with a crust of salt and sulphur; but he does not specify the nature of the former; and though the presence of the latter is not improbable, he might have been led into a mistake by the yellow colour, and have taken the muriate of ammoniac (sal ammoniac) for sulphur, as I did before I had examined it. Sir William has not told us that he made any examination at all; and it is probable that he judged only from the appearance it presented to his eye.

He observes, lastly, that the crater was two miles and a half in circumference; an estimate which may be made to agree with mine by neglecting the partition which separates the greater crater from the less, and considering them both as one. The sum of the two circumferences, according to the estimate I have given, would not then greatly differ from the measure of Sir William Hamilton. Nothing likewise can be more probable, than that among the various changes that have happened to Etna, this partition, by which the great crater is divided into two parts, has been produced.

Omitting the observations of Mr. Brydone, that "the tremendous gulf of Etna, so celebrated in all ages, has been looked upon as the terror both of this and another life; that it inspires such awe and horror, that it is not surprising that it has been considered as the place of the damned:" and other similar philosophical reflections which he has employed; and confining ourselves to what he actually saw on the 29th of May, 1770, we learn from him that "the crater was then a circle of about three miles and a half in circumference; that it went shelving down on each side, and formed a regular hollow, like a vast amphitheatre; and that a great mouth opened near the centre*."

From the time of the journey of Sir William Hamilton therefore, to that of the visit of Brydone, that is to say within the short space of a year, various changes had happened to this volcano, by the enlargement of its crater, and a spacious aperture formed in its bottom.

Count Borch appears to have wished to exceed the three other travellers in brevity, relative to this subject; since he only tells us that he arrived at the mountain on the 16th of December 1776, and that the crater of Etna is formed like a funnel. He adds

* Brydone's Tour through Sicily and Malta, vol. i. p. 195, 196.

however,

however, what is worthy of notice, that the summit of Etna is bifurcated, as I observed it to be; a circumstance not noticed by others, Sir William Hamilton even affirming that the summit of the mountain is single; whence we may conclude that one of these summits has been produced since the time of the journey of Brydone, in 1770.

On comparing the above-cited observations, made within the space of twenty-one years, we may perceive how many changes have taken place in Etna during that interval; and as within that time the mountain has suffered only two violent convulsions, in the eruptions of 1781 and 1787, it is evident that even in the state of apparent inaction, it still internally exerts its force.

To these observations, it may, likewise, not be without utility to add those of M. D'Orville. He ascended Etna in 1727, and remarked two craters; one larger than the other. The latter he only mentions, but the former he describes at some length. Its circumference was perhaps somewhat more than four miles. From it issued clouds of smoke and reddish flames. These however did not prevent his approaching to the edge of the gulf; though to prevent the danger of falling into it, he and his companions fastened themselves to a rope held by three men. On looking into the crater, they were unable to discern the bottom, on account of the flames and smoke: they only observed that a conical hill formed of lava, rose in the middle of the crater, the top of which they estimated to be sixty feet below them; and they were able to see perhaps about sixty lower; where they conjectured the circuit of this hill might be from six hundred to eight hundred feet*.

We have here a remarkable circumstance relative to Etna, as it appeared in the time of M. D'Orville, and not observed by any one of the four travellers above cited—I mean the conical hill within the crater. Every observation therefore, tends to confirm the inconstancy of the internal configuration and dimensions of this volcano. It is an extinguished forge, which in proportion to the violence of the fire, to the nature of the fossil matters on which it acts, and of the elastic fluids which urge and set it in motion, produces, destroys, and re-produces various forms. The usual and natural figure of the summit of a volcanic mountain is that of an inverted concave cone within, and one solid and erect without; and such a configuration, in countries which are no longer in a state of conflagration, is one of the most certain indications of the existence of an ancient volcano. This cone, however, is liable to very great changes; according to the greater or less fury of the volcano, and the quantity and quality of the matters ejected. Its internal part, from more than one cause, is exposed to continual violence and change. The prodigious cavities of the mountain make it almost appear suspended in the air. It may easily therefore give way, and fall in; especially on the violent impulse of new matters which endeavour to force a passage through the upper part; in consequence of which the inverted cone may, according to circumstances, present the appearance of an aperture, or whirlpool, or a gulf. Should the liquid lava pass through the aperture, and continue there some time, its superficies by the contact of the cold air losing its heat gradually, would congeal and form a crust or solid plain; and should the fluid lava beneath, afterwards act forcibly on this crust, it might burst it, or make a passage where it found least resistance; in which case the melted lava would occupy that aperture. Should then the crust, instead of ascending in a single body, be forced up in small fragments, these cooled in the air, would fall down in immense quantities within the crater; and from the effect of the laws of gravity, must accumulate in the figure of a cone. These theoretical conjectures, if they do not perfectly explain, may at least enable us to con-

* Jacobi Philippi D'Orville Sicula,

ceive the nature of the causes which have produced the difference of appearance observed at different times in the crater of Etna.

It is much to be regretted that we have no history of Etna; which, did we possess it, must greatly contribute to elucidate the theory of volcanos, and the causes of the various changes which have taken place at different times, in the summit of this mountain. That such changes have happened, is evident from the few but valuable notices concerning Etna, which we find in ancient authors. Of these I shall briefly state two or three which appear to be of most importance.

I shall first produce the authority of Strabo, though he was not himself an ocular witness, but relied on the information of others, who had visited Etna, and from whom he received the account, "That the summit was a level plain of about twenty stadia in circumference, surrounded by a brow or ridge, of the height of a wall; and that in the middle of the plain arose a smoky hill, the smoke of which ascended in a direct line, to the height of two hundred feet *."

If we consider this description as accurate, the crater of Etna was at that time surrounded by a brow or ridge, which I should explain as the sides or edges; and in the lower part, was separated by a mount rising in the middle †. The same geographer relates, that two men having ventured to descend upon the plain, were obliged immediately to return, from the violence of the heat ‡.

Solinus tells us that there were two craters from which the vapours issued §.

Cardinal Bembo likewise found two craters on the summit, the one higher than the other, and about as far distant as a stone might be thrown from a sling. The extreme violence of the wind, and the exhaling fumes, prevented him from approaching the upper crater. The lower he found to be formed like an immense pit, and surrounded with a plain of no great extent, which was so hot that he could not bear his hand on it. From its mouth, as from a chimney, continually issued a column of smoke.

Of the other crater which he could not observe himself, he received a description at Catania from a monk, who, he assures us, was a man deserving credit, and well acquainted with such subjects. He informed him that this crater was situated on the highest part of the summit of Etna; that it was about three miles in circumference; formed like a funnel; and that it had in the middle a spacious cavity. He asserted that he had made the circuit of it, along a kind of narrow ridge; that from time to time, it threw out stones and burning matters to a considerable height, roaring and shaking the ground; but that in the intervals when it was undisturbed, he had observed it without danger or difficulty.

In the time of Fazello, however, who visited Etna after Cardinal Bembo, there were no longer two craters, but only one; the circumference of which, as he informs us, was four miles. It had the usual form of the funnel, emitted fire and thick smoke, but at intervals was calm, and might be approached; at which times a subterraneous noise was heard, and a sound like that of the boiling of an immense caldron on a vast fire.

* Οι δ' οὖν νεῖσι ἀναβάντες, διὰ τὸ ἥνιν, οἱ κατέλαβον ἀνὰ πῆλιν ὄμαλον, ὅσον ἱκοσι σταδίων τὴν περιμέτρῳ, κλειόμενον ὀφρεῖ τιφί δι, τευχίου τοῦ ὕψους ἰχθύος, ὁρατοὶ τὸ μέσον οὖνον τεφρωθὴ τὴν χεῖραν, ὑπερὶ δὲ τοῦ οὖνου πλεονάζον διανεσπῆκος μὲς ὕψους οὗτον διακρούων πύθων εὐκαζέιν δὲ κατὰ κατὰ.

† This observation agrees with that of D'Orville mentioned above. I find likewise that similar mounts have sometimes been thrown up within the crater of Vesuvius. De Bottis *Istoria di varj incendi del Vesuvio*.

‡ Δυο δὲ πολυμνηστῆρας προσελθόντες εἰς τὸ μέσον ἔπειθε θεσμοτρεῖς ἰσθμίων τῆς ἀμμου καὶ βαλντιστῆρας, ἀναστῆσαι, μηδὲν ὀχρῶντος περιόλῃσιν φερεῖν τῶν φαινομένων τοῖς περιόλῃσιν ἀφ' ὧντος.

§ In Etnæ vertice hiatus duo sunt, crateres nominati, per quos eructatus erumpit vapor. Cap. xi.

These observations were made by him in 1541, and 1554; in both which years the crater appears to have been single*.

These few citations appear to me sufficient to shew what changes have taken place in the summit of Etna, relative to number, the form, and the size of its craters, according to the different effects of its conflagrations at different times. But there is likewise another alteration which should not be passed unnoticed, described by two writers who themselves observed it, Fazello and Borelli; I mean the falling in and absorption of the extreme summit of Etna within its crater. The former of the above-mentioned authors relates, that in his time there arose in the mouth of the crater, a little hill, isolated on every side, which formed the vertex of the mountain; and which in a terrible eruption fell into, and was buried in the gulf, thus enlarging the crater, and diminishing the height of the mountain. This hill itself had been produced by a former eruption in 1444†.

In like manner, Borelli informs us that in the conflagration of 1669, the summit of Etna, which rose like a tower to a great height above the part which is level, was swallowed up in the deep gulf‡.

I have already said, that when I visited Etna, its summit was divided into two points, or little mountains, one of which rose a quarter of a mile above the other. I should not be surpris'd were I to hear that in some new and fierce eruption, the highest of these had fallen in, and the two craters become one of much larger dimensions. We know that the summit of Vesuvius has sometimes fallen down in the same manner; nor does it appear difficult to assign the cause. It seems to admit of no doubt that the highest parts of Etna, and other mountains which vomit fire from their summits, have their foundations on the sides of the crater, which extend to an immense depth. In any violent earthquake therefore, or impetuous shock of the lava endeavouring to force a passage, it may easily be imagined that those foundations must be torn up and broken away, and the summit of the volcano fall and be lost in the gulf.

These dilapidations have not however, from time immemorial, produced any sensible diminution of the height of the summit of Etna; since the losses occasioned by some eruptions are repaired by others which follow. This may be inferred from a phenomenon usually inseparable from the summit of Etna, though by rare accident, not observable at the time of my journey; I mean the ice and snow with which it is covered. Had any considerable decrease of the height of the mountain taken place, in consequence of the summit repeatedly falling in, in former ages, the ice and snow would not certainly in a climate so mild, have continued to envelope the top of the mountain as they now do, even during the greatest heats of summer. But this continual residence of the snow and ice on Etna has been celebrated by all antiquity; for near observation was not necessary to ascertain this phenomenon, since it is distinctly apparent at the distance of a hundred miles. *Adscendit ea regio (says Fazello, speaking of the upper region of Etna) passuum millia fere xii.; quæ per hyemem tota nivibus obsita extremisque frigoribus riget: per æstatem quoque nulla sui parte nec canitie nec gelu caret: quod equidem admiratione dignum est; cum vertex incendia prope sempiterna jugi flammarum eructatione inter nives ipsas pariat, enutriat, ac continuet.* "This region extends nearly twelve miles; and even in summer, is almost perpetually covered with snow, and extremely cold; which is the more wonderful as the summit continually produces, nourishes, and pours forth flames amid the ice and snow with which it is enveloped."

* Fazel. Sic.

† Ubi sup.

‡ Ubi sup.

Solinus and Silius Italicus give the same description. The former says—*Mirum est quod in illa ferventis naturæ pervicacia mixtas ignibus (Etna) nives profert, et licet vastis exundet incendiis, aprica canite perpetuo brumalem detinet faciem* * . . . Etna, in a wonderful manner, exhibits snows mixed with fires; and retains every appearance of the severest winter amid her vast conflagrations."

Silius Italicus has the following lines :

" Summo cana jugo cohibet (mirabile dictu)
Vicinam flammis glaciem, æternoque rigore
Ardentes horrent scopuli. stat vertice celi
Collis hyems, calidaque nivem tegit atra favilla †."

" Where burning Etna, towering, threatens the skies,
" 'Mid flames and ice the lofty rocks arise ;
" The fire amid eternal winter glows,
" And the warm ashes hide the hoary snows."

And since I have quoted a poet, I will cite two others; Claudian and Pindar; as it is sufficiently evident that poetry here must express truth and not fiction.

" Sed quamvis nimio servens exuberet æstu,
Scit nivibus fervare fidem : pariterque favillis
Durescit glacies, tanti securo vaporis,
Arcano defensa gelu, fumoque fideli
Lambit contiguas innoxia flamma pruinas ‡."

" Amid the fires accumulates the snow,
" And frost remains where burning ashes glow ;
" O'er ice eternal sweep th' inactive flames,
" And winter, spite of fire, the region claims."

Thus the Latin poet ; but the Greek has given us a picture of Etna much more highly coloured, representing it not only as the eternal abode of snows, but as the column of heaven, to express its astonishing height.

" Κίω δ' ὕψιστα
Νιφεῖσσι Ἀῖναι παύεσι·
Χιονος ὄξυσ τείνεται §."

—" Snowy Etna, nurse of endless frost,
" The mighty prop of heaven."

It is to be remarked that Pindar lived five hundred years before the Christian æra.

I now return from this digression, which though not indeed very short, appears to me perfectly appropriate to the subject ; and proceed to resume my narrative. I shall first speak briefly of a phenomenon relative to the smoke which arises from the crater of Etna, and which was seen differently by Mr. Brydone, Count Borch, and myself. Mr. Brydone tells us that " from many places of the crater issue volumes of sulphurous smoke, which being much heavier than the circumambient air, instead of rising in it, as smoke generally does, immediately on its getting out of the crater, rolls down the side of the mountain like a torrent, till coming to that part of the atmosphere of the same specific gravity with itself, it shoots off horizontally, and forms a large track in the air according to the direction of the wind."

* Cap. xi.

† Lib. xiv.

‡ Claud. de Rapt. Prof.

§ Pind. Pyth. Od. i.

On the contrary, the smoke when seen by Count Borch, at the intervals when the air was calm, arose perpendicularly, to a great height, and afterwards fell, like white fleeces, on the top of the mountain. I shall not presume to doubt these two facts, though I observed neither of them. The two columns of smoke which I saw, though bent somewhat from the perpendicular by the wind, ascended with the usual promptitude of ordinary smoke, (a certain proof that it was considerably lighter than the ambient air,) and, when at a great height, became extremely rarefied and dispersed. This difference in the appearance of the smoke as observed by the two authors before mentioned and myself, may arise not only from the gravity of the air on Etna being different at different times, but also from the diversity of the smoke, which may be sometimes lighter and sometimes heavier than the air that surrounds it; differing in its nature according to the quality of the substances from which it is produced. Such a variation in its specific gravity must induce us to conclude that the bodies which burn within the crater are specifically different.

The effects of the air at the summit of Etna, as experienced by myself and some of the travellers I have before cited, were likewise different. Sir William Hamilton tells us, that the thinness of that fluid occasioned a difficulty of respiration; and Count Borch appears to have experienced a still greater inconvenience of that kind, since he says—"The rarity of the air on this mountain is extremely sensible, and almost renders that fluid unfit for respiration." On the contrary, Baron Riedesel felt no such effect, as far, at least, as we can judge from his own words. "I did not perceive, as several travellers have asserted, that the air here is so thin and rarefied as to prevent, or at least greatly incommode, respiration." Mr. Brydone has said nothing on the subject, and his silence may induce us to conclude that he experienced no difficulty.

I, my servant, and the two guides, suffered no inconvenience from the air. The exertions we had made, indeed, in climbing up the craggy steep declivities which surround the crater, produced a shortness of breathing; but when we had reached the summit, and recovered from our weariness by rest, we felt no kind of inconvenience, either while sitting, or when, incited by curiosity, we went round and examined different parts of the edges of the crater. The same is affirmed by Borelli: *Æque bene respiratio in cacumine Ætnæ absolvitur, ac in locis subjectis campestribus*—"Respiration is performed with the same ease on the top of Etna, as in the country below."

Several writers have treated of the difficulty of respiration experienced by those who travel over high mountains, and other inconveniences to which they are exposed; but none, in my opinion, more judiciously than M. Saussure, in his Travels among the Alps. The observations he has made appear to me to explain the cause of these different accounts, relative to the effect of the air on the top of Etna. When the height above the level of the sea was two thousand four hundred and fifty poles, or nearly such, which he found to be that of Mount Blanc, every individual felt more or less inconvenience from the rarefaction of the air, as happened to himself and nineteen persons who accompanied him, when in August 1787, he ascended that mountain. But when the elevation was much less, as for example, nineteen hundred poles, some of these persons felt no difficulty, among whom was this naturalist; though he confesses that he began to experience inconvenience as he ascended higher. We have not indeed any certain observations relative to the exact height of Etna, as is sufficiently proved by the different estimates given by different naturalists. Signor Dangios, however, astronomer at Malta, in the year 1787, measured the height of this mountain by a geometrical method, and the public anxiously expects the results, which will satisfactorily solve this important problem. In the mean time, from comparing the measures hitherto assigned,

the elevation of Etna above the level of the sea is probably somewhat less than nineteen hundred poles. Hence we understand why respiration, in many persons, is not incommoded, while the contrary happens to others, according to the different strength and habit of body of different individuals.

After having, for two hours, indulged my eyes with a view of the interior of the crater, that is, in the contemplation of a spectacle which in its kind, and in the present age, is without a parallel in the world; I turned them to another scene, which is likewise unequalled for the multiplicity, the beauty and the variety of the objects it presents. In fact, there is, perhaps, no elevated region on the whole globe which offers, at one view, so ample an extent of sea and land as the summit of Etna. The first of the sublime objects which it presents is the immense mass of its own colossal body. When in the country below it, near Catania, we raise our eyes to this sovereign of the mountains, we certainly survey it with admiration, as it rises majestically, and lifts its lofty head above the clouds; and with a kind of geometric glance we estimate its height from the base to the summit: but we only see it in profile. Very different is the appearance it presents, viewed from its towering top, when the whole of its enormous bulk is subjected to the eye. The first part, and that nearest the observer, is the Upper Region, which, from the quantity of snows and ice beneath which it is buried during the greater part of the year, may be called the frigid zone, but which, at that time, was divested of this covering, and only exhibited rough and craggy cliffs, here piled on each other, and there separate, and rising perpendicularly; fearful to view and impossible to ascend. Towards the middle of this zone, an assemblage of fugitive clouds, irradiated by the sun, and all in motion, increased the wild variety of the scene. Lower down, appeared the Middle Region, which, from the mildness of its climate, may merit the name of the temperate zone. Its numerous woods, interrupted in various places, seem, like a torn garment, to discover the nudity of the mountain. Here arise a multitude of other mountains, which in any other situation would appear of a gigantic size, but are but pigmies compared to Etna. These have all originated from fiery eruptions. Lastly the eye contemplates, with admiration, the Lower Region, which, from its violent heat, may claim the appellation of the torrid zone; the most extensive of the three, adorned with elegant villas and castles, verdant hills, and flowery fields, and terminated by the extensive coast, where to the south, stands the beautiful city of Catania, to which the waves of the neighbouring sea serve as a mirror.

But not only do we discover, from this astonishing elevation, the entire massy body of Mount Etna; but the whole of the island of Sicily, with all its noble cities, lofty hills, extensive plains, and meandering rivers. In the indistinct distance we perceive Malta; but have a clear view of the environs of Messina, and the greater part of Calabria; while Lipari, the fuming Vulcano, the blazing Stromboli, and the other Eolian isles, appear immediately under our feet, and seem as if, on stooping down, we might touch them with the finger.

Another object no less superb and majestic, was the far-stretching surface of the subjacent sea which surrounded me, and led my eye to an immense distance, till it seemed gradually to mingle with the heavens.

Seated in the midst of this theatre of the wonders of Nature, I felt an indefinable pleasure from the multiplicity and beauty of the objects I surveyed; and a kind of internal satisfaction and exultation of heart. The sun was advancing to the meridian, unobscured by the smallest cloud, and Reaumur's thermometer stood at the tenth degree above the freezing point. I was therefore in that temperature which is most friendly to man; and the refined air I breathed, as if it had been entirely vital, communicated a vigour

vigour and agility to my limbs, and an activity and life to my ideas, which appeared to be of a celestial nature.

Not without regret, I, at length, recollected it was time to return, and relinquish this enchanting scene; since I had determined to pass the ensuing night at San Niccolò dell' Arena, to avoid the hard bed and inconveniences of the Grotto delle Capre. I had resolved, likewise, to return to Catania by another way, in order to examine objects which might render my journey of greater utility. The road I took, the objects which presented themselves, and the observations I made on them, I shall relate in the following chapter.

CHAP. IX.—RETURN FROM MOUNT ETNA TO CATANIA.

Manner in which the Author descended with ease and security from the summit of Etna.—Materials of which the Torre del Filosofo is composed.—Confirmation that the lava which flowed in October 1787, is still internally penetrated by the fire.—The observation that the secondary mountains on the sides of Etna are of volcanic origin, not novel but ancient.—Probability that Monte Rosso was the result of a partial eruption which had no communication with the crater of Etna.—Another eruption from the sides of Etna which had no connection with that crater.—Great want of water experienced by the peasants who inhabit Etna, from a long dry season.—Affecting incident arising from this circumstance.—A scarcity of springs common in volcanized countries.—The Scogli de' Ciclopi, or Rocks of Cyclops.—Some of them, but not all, of a prismatic conformation.—Zeolites found on these rocks.—Vitrification of those zeolites in the furnace.—Pumices not found on Mount Etna, as has been affirmed by Count Borch, and others.—Animals observed by the Author in the Middle and Upper Regions of Etna.—Two museums in Catania already known to strangers, and a third lately established, valuable for its contents.—Natural History little cultivated at Catania, with respect to that part which relates to the mineral kingdom; but more relatively to the animal.

THE ascent up the steep and craggy cone of Etna, though not more than a mile in a direct line, cost me, as I have already said, three hours of laborious and fatiguing exertion. It seems scarcely necessary to say that the descent employed me less time, but the difference greatly exceeded my expectation. I found that to effect this descent nothing more was required, but to fix my feet firmly on some large piece of scoriæ, and balance my body, since that piece, from almost the smallest impulse I could give it, would slide swiftly down the descent, and convey me to a considerable distance, till stopped by the accumulation of the lesser pieces of scoriæ which it drove before it; when I had only to select another large piece, on which I again glided down as before; only taking care, with the staff I held in my hand, to turn aside the pieces of scoriæ which followed me in my descent, that they might not strike against and wound my legs. In this manner, in a few minutes, I arrived at the bottom of that declivity.

A little below the summit of Etna, are the ruins of a very ancient fabric, called La Torre del Filosofo, the Tower of the Philosopher; it having been pretended, and believed by many, that it was built by Empedocles, that he might fix his habitation in a place convenient for observing the conflagrations of Etna. Others imagine it to have been an ancient temple of some deity; while others have conjectured that it was a watch-tower, built by the Normans to observe the motions of their enemies, and give notice of them, by some signal, to the different bodies of troops scattered over the island.

It is very apparent that these, and other opinions which I omit for the sake of brevity, are very inconclusive with respect to the real use and design of this ruined edifice, which could but little attract the notice of history. I did not visit it in my journey to Etna, having been conducted another way by my guides. Nor should I have regretted not having seen it, had I not reflected, that the great antiquity of the fabric might justly excite a curiosity to examine the materials, and ascertain whether they were lateritious or volcanic. This induced me, after I had returned to Italy, to write to the Abbate Francesco Ferrara, at Catania, a person well versed in the science of nature, requesting him to send me, to Pavia, some specimens of the materials of which the Torre del Filosofo was composed. He very politely complied with my request, and I found on examination, that these materials were of the following kind: they consist, first, of a cement of lime, which, by length of time, has become carbonate of lime; in which cement were incorporated great numbers of pieces of black cellular scoriæ of lava; but so changed by the effect of time, that many of them were become externally pulverulent, and internally extremely friable. The shoerls they contained had likewise lost, at the superficies of the scoriæ, their natural lineaments, and all their lustre, and were become so soft that they might every where be cut with the point of a penknife. This cement was, in the second place, united to two kinds of lava, which exhaled an argillaceous odour in their fractures, and had for their base the horn-stone. One of these was very compact, extremely hard, of a ferruginous colour, a fine grain, with numerous felspar points scattered in it. The other was a grey colour, of rather a fine texture, and contained an incredible quantity of felspars; so that when viewed with a lens, by the clear light of the sun, it appeared extremely brilliant. The materials, therefore, of this edifice, whatever was its original destination, were, in part taken from the place, with the addition of a cement of lime, to give the building the necessary solidity *.

I afterwards, again crossed the lava which flowed in October 1787, and, as I returned by a different way, I found myself near another part of it, where it still remained extremely hot; which tended to confirm me in my opinion that the internal and central part of this lava still contains a very active and strong fire.

Having reached the middle region, I ascended some of those mountains which I had observed from the summit of Etna, and which, from their conical figure, and the cavity at their top, clearly shew that they are the productions of fire†. I was, in fact, convinced

* I have read, in the works of some travellers, that fragments of brick and marble are found in the Torre del Filosofo; but the Abbate Ferrara has assured me that such fragments no longer exist.

† I had at first believed that the observation that these mountains are truly volcanic was of late date, referring it to Sir William Hamilton, who has described their conical form, and the crater, or incavation at their summit: but I find it to be very old, since it is mentioned by Borelli, and, before him, by Favello. The following are the words of the former: "Extant nedom in summitate *Ætnæ*, sed etiam in ejus dorso, campeltres voragine, quæ habent fere omnes peculiarem monticulam adinstar verrucæ in animalis cute exporrectæ; suntque predicti colles valde acclives, habentque figuram conî acutanguli plano parallelo basi dissecti; et in summitate cujuslibet eorum sinuosa cavitas reperitur, a qua olim flammæ, arenæ, et glaræ exierunt."—"Extinct vortices (or craters) are found not only on the summit of Etna, but also on the sides. They have almost all of them their peculiar hills, projecting like a wart on the skin of an animal; which hills are extremely steep and have the figure of a rectangular cone dissected parallel to its base. At the top of each is a sinuous cavity, from which formerly issued flames, sand, and lava."

We know that by *glaræ* he means lava; in fact, at Catania, it is still called *sciara*.

Favello had before observed and described these volcanic hills. His words are: "Plurimos præterea memorosins et editos offendimus colles, quorum cacumina voragine, licet silvescentes, exhibebant. Eos veterem esse materiam ex visceribus montis olim proditam, postremi profluvii hiatus, qui similem fere formam, enataque recens habet arborea, arguebat."—"We likewise find several lofty hills, the tops of which, though overgrown with wood, exhibit the appearance of craters. The mouth of the last eruption, which

convinced that they bear unequivocal marks of the effects of that destructive agent in an accumulation of lavas, scoriae, and volcanic sand.

Another enquiry relative to these mountains here naturally suggests itself. Is their origin derived from the melted matter contained within the immense abyfs of Etna, which, unable to reach the crater, from the excessive height, has burst forth through its sides, and thus formed these mountains? or, as is perhaps more probable, have they been produced by particular conflagrations and eruptions which have no communication with the immense furnace within the crater? I know that the generality of volcanists embrace the former opinion, and reject the latter with contempt; and I find, that, whenever the lesser mountains are produced on the sides of the principal volcano, by the means of eruptions, they usually have recourse to this hypothesis for the explication of the cause. Thus, since the eruptions of lava which have issued from the crater of Vesuvius are much more numerous than those of Etna, they endeavour to account for the difference, by alleging that, in consequence of the small height of the former volcano, the lava can more easily reach the crater; whereas, in the latter, it is compelled to force a passage through the side, from being unable to rise to so prodigious an elevation.

I readily admit, that this frequently happens; but instances may certainly be cited which afford strong reasons to believe that the production of the lateral mountain arises from partial eruptions, which have no communication with the principle crater. Of this Monte Rosso is an example. In the morning of the 11th of March 1663, a vast cleft opened not far from the place in which, afterwards, Monte Rosso arose, and extended for the space of ten miles, in the direction of the grand crater of Etna. On the night following, in the place where this mountain now stands, another large cleft opened, from which were immediately ejected immense clouds of smoke, and showers of melted stones, preceded by a tremendous noise and violent concussions of the earth.

On the night of the 12th a river of lava poured down; and the next day a prodigious quantity of sand and stones was thrown out. Yet during all these subterranean thunders, convulsions of the earth, streams of lava, and showers of stones, the upper crater of Etna was perfectly undisturbed, and only, from time to time, emitted some light smoke which had before issued, and is usually in its greatest state of tranquility*. I know not whether I am mistaken in considering this as a probable proof that there is no communication between the highest mouth of Etna, and the new one which has opened in the side some miles distant from it. I have observed likewise, with Borelli, that the

is nearly of the same form, and already bears trees, renders it probable that they are composed of the matter anciently ejected from the bowels of the mountain."

The same observation is likewise repeated by D'Orville, who, in 1727, visited Etna—"Colles hi non solum circum magnum creterem (Etnæ), verum etiam inde per circuitum viginti mille passuum et ultra in toto monte dispersi sunt. Omnes hos colles aliquando igneam materiam e summo vertice ejecisse, omnia suadent; et in multis hujus rei adeo aperta extant vestigia, ut nemo dubitare possit. Quin ipse in culmine collis illius, quem *monte similem* diximus, positos in verticibus nonnullorum crateres depressos, et plane undique lapidum exustorum congerie circumsdatos animadverti."—"These hills are not only found adjoining to the great crater, but are dispersed in a circuit of twenty miles and more, and, indeed, throughout the whole mountain. Every appearance proves that all these hills have once ejected a fiery matter from their summits; and in many the traces of this are so evident, that it is impossible to entertain a doubt. The remains of craters are apparent; and they are frequently surrounded with accumulations of burnt stones."

Thus we find the description given by the English naturalist of this lesser volcanic mountain, had been preceded by that of a Sicilian, an Italian, and a Dutch writer, all eye-witnesses of what they described.

* Borelli, *ubi sup.*

highest

highest crater, having remained silent and at rest until the twenty-fifth day, afterwards began to rage with the same symptoms of smoke, thunders, earthquakes, and ejected sand and stones; and in fine, by the ruin of its summit, precipitated and buried in its gulph. It seems extremely probable, that this change has been effected by the breaking away of the stony mass which separated the old and new crater, the consequence of which the fire and effervescent matters forced their passage, and ed themselves from another opening at the summit of the mountain.

We must not omit to notice another fact related to the sides of Etna, which, though it does not respect the formation of any mountain, may authorize us to conclude, that some lateral gulph may open and disgorge fiery torrents without any such communication. Such an eruption happened in 1636, when the ground, nine miles from the summit of Etna, opened in two places, and poured out two torrents of lava without any appearance of fire or smoke at the summit of the mountain. It is very probable that we should have accounts of other similar eruptions, and other mountains formed on the sides of Etna, had the ancients studied and recorded the conflagrations of that mountain, in the manner the moderns have begun to observe and describe them.

Whatever may be the matters which cause and continue volcanos, it is only necessary that they should exist and take fire in a place that has no communication with the central volcano, to produce partial eruptions and mountains, which may very naturally be supposed to happen.

After having slept at San Niccolo dell Arena the night preceding the 5th of September, I set out early the next morning, taking my way by the *Rocks of the Cyclops*, celebrated for the basaltiform lavas of which they consist. In this part of my journey I continually passed over lavas, and through several villages built upon them.

A short time before I reached the rocks I was in search of, a scene presented itself, which, though foreign to my subject, the sentiment of humanity and compassion we feel on witnessing the misfortunes of our fellow-creatures will not permit me to pass in silence.

Mount Etna has at all times been very deficient in springs; but when I was there the scarcity of water was extreme, not a drop of rain having fallen for nine months; and the rain-water which the peasants of these places had collected in cisterns being exhausted, they were obliged to go in search of it to those parts of the mountain where a scanty spring might still be found. Though in my journey up Etna I had sufficient reason to notice this scarcity of water, by being made to pay for it much dearer than for wine at Catania, I was much more convinced of it when, on my way, I saw a number of women and girls carrying barrels as beasts of burden, to fill with water at a spring on one side of the road. But the scene which made the greatest impression on me, I met with on my return, in the vicinity of Jaci; where I saw more than one hundred poor mountaineers of both sexes, who had come thither to quench their thirst at a stream of water which issued from the midst of the lava. It strongly excited my pity to see these wretched peasants, all bare-footed, exposed to a burning sun, for the heat was then very great in those low parts of the mountain; and labouring and sweating under the load of large earthen vessels, which they had brought on their shoulders and heads, a distance of more than ten miles, to carry home water. When they came within sight of the spring, they exerted all the strength they retained, hastened their weary steps, and, when they reached it, began to drink with extreme eagerness, without for a long time taking away their lips. How much was my commiseration increased, when they informed me they were obliged to perform this laborious journey every day, that is, to employ

If we take small pieces of lava, detached from the rocks to which the zeolites adhere, leave them for some time in the fire, and observe them after they have cooled, the following are the results:

The zeolites, though the lava, their matrix, has not undergone a complete fusion, are vitrified, and have flowed over the surface of the lava, forming a leaf of glass; but the greater part become globules, which, from their lucid milky whiteness, resemble pearls. When examined with the lens, these globules are found to be full of cracks, probably caused by the sudden removal of the lavas from the furnace into the cold air. This glass is semi-transparent and hard. If we break the pieces of lava exposed to the fire and examine the fractures, we shall find that only a semi-vitrification has taken place in the zeolites they contain. Some of these zeolitic lavas are of a homogeneous substance, but others include small shoerls. The magnet attracts the powder of them, and some have polarity, attracting one end of the magnetic needle, and repelling the other.

I have but a few observations more to make, relative to Etna. Count Borch, not perfectly satisfied with the received division of the mountain into three regions, the lower, the middle, and the higher, has added a fourth, which he calls the region of snow; and each of the four regions he again subdivides into several districts. I shall not dispute with him these minute distinctions, which, whether they tend more to clearness or confusion may be difficult to determine. I shall only make some brief remarks on his district of scoriæ, in the second region, which he says: "The district of scoriæ contains a surface of two miles entirely covered with pumices, ashes, and scoriæ."

Without noticing the scoriæ and ashes, I know not what he understood by *pumices*. The truth is, that Etna affords none, as Dolomieu, who so minutely examined the mountain, has expressly asserted; and, as I took nearly the same road with Borch, I must have met with them had they been so plentiful as he describes. The Chevalier Gioeni, likewise, in his account of the products of the eruption of 1787, describing one which, in its configuration resembles the porous pumices of Lipari, remarks that this is the first time that Etna has ejected such a kind of stone*.

In my journey to Etna, and on my return, at the same time that I examined volcanic objects I did not neglect to observe whether the two more elevated regions of the mountain were inhabited by animals. A little beyond Monte Rosso, I bought five partridges (*Tetrao rufus* Lin.) of a sportsman, who had shot them at the upper extremity of the middle region. These I had roasted at San Niccolo dell' Arena, and they furnished me with two good meals. In crossing the same region I met with several birds of the titmouse species (*Parus major*; *Parus caruleus* Lin.), a kite (*Falco milvus*), three jays (*Corvus glandularius*), two thrushes (*Turdus viscivorus*); and several ravens and crows (*Corvus corax*; *Corvus corone*): half way up the higher region I saw no other animals, except some lion-ants (*Myrmecoleon formicarum* Linn.) which made their pit-falls in the dust of the lavas. There were several of them in a dusty corner of the Grotta delle Capre. As they live by ensnaring other small animals, and especially ants in the slip-

* Borch is not the only person who has fallen into this error. Sir William Hamilton, when he visited Etna, found there no pumices; but he was told by the Canon Recupero of Catania that the mountain produced them: the Canon, however, it is well known, was unacquainted with the first principles of lithology. Baron Riedesel, who, in this part of science, was perhaps not superior to the Canon, says that pumice is among the number of stones ejected by Etna; and joins with it the sand-stone; a production which, according to those best acquainted with the mineralogy of volcanos, is as much a stranger to Etna as the pumice. One of these writers may, probably, have induced M. Sage to assert that "Etna throws out a great quantity of pumices." This gross error was probably occasioned by the resemblance which to persons little acquainted with such substances, scoriæ and cellular lavas appear to have to pumices.

perys they form; it may be necessary to observe, that these are not wanting there, though I did not see them.

The city of Catania, during my stay there, amply afforded me the means of amusement and instruction. The two Museums, the one belonging to the Prince di Biscari, and the other to the Benedictine Fathers, besides the various objects they contain relative to the arts and antiquities, are also furnished with a collection of natural productions, and will be found to correspond to the great expectations that may have been formed of them from the advantageous descriptions of Riedesel, Brydone, and Borch. That of the Prince is distinguished by some rare specimens which might adorn the richest and most extensive collections. But in that city a third museum, hitherto little known, because it is new, is beginning to flourish. It may be said it is yet in its infancy; but the infant may become a giant. The possessor and founder of it is the Chevalier Gioeni. His first intention was to collect the most curious and interesting productions of the Sicilian sea; and he has succeeded admirably. We here find dry preparations of the fishes most remarkable for their form or the rarity of their species. Among the numerous families of zoophyta, the alcyonia, the antipathes, the cellulariæ, the escharæ, the pennatulæ, the fertulariæ, the milleporæ, and the isides (coral), are not wanting; but the madreporæ and the gorgonæ are the most conspicuous for their beauty and rarity. It is equally well furnished with specimens of the principal crustaceous animals of that sea, but the numerous and chosen collection of those of the testaceous kind is the principal ornament of the museum. With respect to these, we find a practice adopted we meet with in no other cabinet. As there are some extremely minute shells, in size not exceeding a grain of sand, which it is impossible to view distinctly with the naked eye, they are as it were lost in the greater part of other museums; but here they are placed, methodically distributed, at the bottom of small tubes, at the other end of which is a lens; by the aid of which the eye is enabled to discover the beauty of the colours, the peculiarity of the involutions, the infinite variety of the forms, the windings of the apertures, the cavities, prominences, points, threads, &c. In fine, these points of organized matter, by this means, equally with the larger crustaceous animals, afford pleasure to the eyes of the curious, and useful instruction to the learned, for characterizing the species.

The Chevalier Gioeni, in consequence of his researches relative to these aquatic animals, has distinguished himself by the discovery of a new genus of multivalve conchylia, which he has already made known; but he will do himself much more honour by the publication of a work on the subject on which he is now employed.

He has not confined himself to marine productions, but has extended his diligence to terrestrial; and the neighbouring volcano has added to his collection. We here find specimens of all the Etnæan products; and amid the multitude of various lavas he has collected, he has discovered a new species, which he has denominated *fibrous*. The method he has adopted of placing the different lavas with the stones and primitive rocks, from which they derive their origin, is highly instructive.

Equally conducive to the advancement of knowledge is the numerous series of testaceous fossils, which he has collected with great labour to the north-east of Etna, in a situation more than three hundred poles above the level of the sea. These extremely resemble the natural which are now found in the neighbouring waters. But as the time when the sea reached to that height is certainly anterior to the annals of history, of what great antiquity must the volcano be which existed before that epocha!

The productions of this part of Sicily are accompanied with those of the rest of the island. We find a noble collection of marbles and jaspers, with various minerals, and crystallized sulphurs.

Though this Museum deserves great commendation for the multiplicity and choice of the objects collected within a few years, it perhaps deserves still greater praise for the accurate and judicious manner in which every part of it is systematised ; a regulation extremely necessary in every collection, and which it is to be wished might be introduced into the two other museums before mentioned.

I have been somewhat more diffuse in my description of this collection, because it merited to be known to foreigners who, should they chance to visit Catania, may by its means procure information of various productions of Sicily and the neighbouring sea, which they might elsewhere seek in vain.

The Chevalier Gioeni is professor of natural history in the university of his country, which can likewise boast of other men of genius, principally in polite literature. The natural sciences, especially those which have relation to the fossil kingdom, are not the most cultivated ; less I believe from indisposition towards them, than from want of encouragement. It is not the same with respect to the other two kingdoms. While I was at Catania, I had the honour to receive visits from several persons of learning ; and I found that more than one of them had read with advantage the works of Bonnet, Buffon, and Duhâmel. Among them may be distinguished the Abbate Don Francesco Ferrara, who afforded me the opportunity of examining the materials of the Torre del Filosofo. The taste for these extensive branches of natural history must become greater, and spread more extensively, from the laudable example set by Signior Ferrara, who has lately published in Sicily, *The Contemplation of Nature* of the philosopher of Geneva (Bonnet) : to which he has added, besides my notes and those of others, a great number of his own, replete with learning and good sense, which must render such a work still more valuable.

VOLUME THE SECOND.

THE LIPARI ISLANDS.

INTRODUCTION.

The volcanization of these islands known to the ancients, and studied by several of the moderns.—A wide field for observation, nevertheless, left for others.—Felicuda, and Alicuda, two of these islands, first examined by the author.

THE Lipari islands are situated in the Mediterranean, between Sicily and Italy, and are called the Eolian isles, from Æolus their reputed king, but more generally the Lipari islands, from the name of the principal and largest. Though they were anciently known to be volcanic, and therefore were called vulcanian, it is only in modern times that their volcanization has been considered as an interesting object of the researches of the philosopher, who labours to promote the knowledge of nature. M. de Luc, Sir William Hamilton, and the Commendator Dolomieu, in this respect, particularly deserve notice.

The former of these naturalists, in the year 1757, visited Volcano, one of these islands, and made a number of observations; especially with respect to the principal circumstances relative to its extensive crater.

The same island, as well as that of Stromboli, exercised the curiosity of Sir William Hamilton; though he only saw it at a distance, as he was returning from Messina to Naples, in the year 1768. The accounts of these two writers will be related and examined in their respective places.

But much more complete and interesting, relative to volcanic enquiries, is the information we received from the Commendator Dolomieu, in his work entitled “A Voyage to the Lipari Islands*.” The field, however, in which he laboured is so extensive and productive, that there is still room for new and abundant harvests. These islands are ten in number, and he remained there only eight days, circumstances perhaps not permitting him a longer stay. Some of them, it is true, are very small; yet others would require many weeks to examine them minutely. Among the latter is the island of Lipari, which is nineteen and a half Italian miles in circuit.

These considerations, therefore, far from causing me to abandon my design of visiting and examining these countries, rather increased my desire to carry my plan into execution; and the work of M. Dolomieu itself gave the last impulse to my determination. With a candour worthy of himself, he thus concludes his observations: “In the description I have given of the Eolian isles, I do not pretend that I have been able to point out every thing interesting which they contain, or entirely exhausted the subject; I rather hope that I shall excite other travellers, who have more time at their disposal, to examine them with attention; in which case, I can assure them, they will be rewarded with a much more abundant harvest than that I have reaped.”

I shall conclude with adding that two of these islands, Felicuda and Alicuda, were not visited by this naturalist; and it was no small gratification to me to recollect that I was the first who had examined them. Wherever I have been preceded by M. Dolomieu, I shall not fail to notice it to the reader; and, while I relate my own observations, shall be careful to do justice to his discoveries.

* Viaggio alle Isole di Lipari.

CHAP. X. — STROMBOLI.

The fires of this volcano visible by night at the distance of a hundred miles.—Their apparent intermissions.—Intermissions in the smoke seen by day.—Shoals of dolphins met with near this island.—Appearances observed in the smoke of the volcano, when seen at a small distance.—Explosions of the volcano.—The alterations in the volcano symptoms of the changes of the atmosphere, according to the opinion of the people of Stromboli.—Signs of good and bad weather deduced from these alterations.—Observations on these prognostics, made by the author during a stay of five and thirty days.—Phenomena of the volcano observed at the distance of two miles from the crater.—Quality of the ashes ejected at that time.—Quality and origin of the sand which occupies a considerable part of the island.—Internal structure of the island.—Conjectures that the crater of this volcano was anciently at the summit of Stromboli.—The island formed of a single, but bifurcated mountain.—Incontrovertible testimonies that for more than a century the crater of this volcano has been situated towards the middle of the mountain.—Error of Sir William Hamilton in placing this crater at the summit.—The opinion, generally admitted, of the intermissions of the conflagration of Stromboli, probably not well founded.—The eruptions at that time much weaker than they frequently are.—The declivity of the mountain to the west the only place where the ejected matter falls into the sea.—Absurd reason assigned by the inhabitants of the Eolian isles why that part of the sea into which the ejected matter falls is never filled with volcanic substances.—Explanation of the author.—Description of the road up the mountain towards the crater.—Height of Stromboli.—Hot acid sulphureous fumes near the summit, which have an internal communication with the volcano.—Remains of an ancient crater at the summit of Stromboli.—Appearance of the ejections seen from above.—Their perpendicular height.—Conclusive proofs that the volcano of Stromboli is not intermittent, as some travellers have asserted.—The cavity of the crater of this volcano probably not very deep.—Streams of smoke which issue from three several parts of the volcano.—The author succeeds in an attempt to approach nearer to the crater.—Phenomena which he observed in consequence of this nearer approach.—Form and structure of the crater.—Liquid lava within it.—Qualities of that lava.—The eruptions of Stromboli little, or not at all, intermittent.—Observations made by night within the crater itself.—An unexpected and terrible phenomenon.—Its explanation.

THE island of Stromboli is distant from Sicily fifty miles, and is the first of the Eolian isles to the north-east. It was called *Στρογγύλη* by the ancient Greeks, from its round figure, and was celebrated for its extraordinary volcano. Etna, Veluvius, Hecla, and other burning mountains, rage at intervals, and vomit forth torrents of fire, but afterwards relapse into a total inaction which continues several years, and sometimes whole centuries; but the eruptions of Stromboli are continual, though not so continual but that, according to the accounts of all the modern travellers, they have sometimes short periodical intermissions.

I sailed from Naples for Sicily on the 24th of August 1788; and the next night, having proceeded to a considerable distance beyond the straits of Capri, I began to discover the fires of Stromboli, though at the distance of at least a hundred miles. I observed a sudden blaze, which feebly struck my eyes, and after two or three seconds disappeared. After ten or twelve minutes the flame again became visible, and again disappeared. I observed this phenomenon for several hours, and it only differed in its longer

longer or shorter duration, and the intervals between its appearances. The mariners with whom I failed testified considerable joy at the sight of this fire, as they assured me that, were it not for the light it afforded in dark and stormy nights, they should frequently be in danger of being shipwrecked at sea, or running on shore on the neighbouring coast of Calabria.

When they arrived, and we had approached much nearer the volcanic island, the light of the sun prevented the flame from being visible; but a smoke appeared, which had nearly the same alternations with the fire before observed. As I was now, however, on my way to Messina, with intention to ascend and examine Mount Etna, I soon lost sight of the volcano, which I proposed afterwards to visit, on my return from Sicily, when I should take up my residence for a short time in Lipari.

This design I carried into execution on the 1st of October, taking the advantage of a felucca which was returning to Stromboli. We sailed early in the morning, a strong south-west wind blowing, and some clouds floating in the atmosphere which appeared to threaten a tempest. The sea was rough; but the wind being in our favour, the master of the felucca, who was at the same time our pilot, encouraged us against the fear of any accident, only telling us, in a jocular manner, that *we should have a little dancing*. All the sails were set, and we flew rather than sailed over the surface of the sea. Though the wind continually increased, and the sea ran higher, so that we were sometimes hanging on the pinnacle of a wave, and again plunged to the bottom of a yawning gulf, we had nothing to fear, as the gale was exactly in our stern; and in less than three hours we arrived at Stromboli, which is thirty Italian miles from Lipari, and anchored on the north-east side of the island, where the body of the mountain breaking the force of the wind rendered the sea somewhat more calm.

During a great part of this voyage we were accompanied by a number of fish, which appeared to attend us as an escort. These were dolphins, which surrounded the ship, playing their gambols, and springing sometimes from the stern to the prow, and back again; then suddenly plunging under the waves, and as suddenly re-appearing, holding up their snouts, and throwing up the water to the height of several feet from the spiracles which they have in the head. On this occasion I observed what I had never noticed before in any of the smaller fish of the cetaceous kind in other seas, I mean the incredible swiftness with which they swim and turn in the water. They would frequently dart from the stern to the stem of the ship, and, though they had to encounter the resistance of the agitated waves, fly with the rapidity of an arrow.

But I return to observations of another kind, and such as are relative to the principal object of this work.

As we advanced towards Stromboli, which was continually before me, I observed that its summit was covered with a very thick smoke, which extended to the brow of the mountain. I landed at nine in the morning, and eager to gain information relative to the volcano, without delay began to ascend the mountain, till I arrived at the extreme edge of the smoke, which I wished to examine with attention. This smoke, to all appearance, perfectly resembled the clouds. In the lower part it was black and dark, and white and shining in the upper; from the former being penetrated with but little of the solar light, and the latter with a greater quantity. It was so thick that the sun could not be seen through it. The upper part of it separated into a number of globes, and various irregular and unusual forms, which, according to the motion of the air, ascended, descended, or took a circular course, becoming whiter and more irradiated by the sun the higher they arose; all which appearances are observable in the clouds, especially in the time of summer. This smoke, when it had reached a great height, became so thin

as to be no longer discernible by the eye. The sulphureous acid it contained was extremely manifest, and so inconvenient to respiration, that I was obliged to return to the plain, not being able at that time to attempt a nearer approach to the volcano, from which dull and hollow explosions were almost continually heard.

The remainder of the day I employed in interrogating the people of the island relative to their volcano, it appearing to me that no persons could give me more information than those who continually had the mountain before their eyes. The following were the accounts I received from them. When the north or north-west winds blow, the smoke is little in quantity and white, and the explosions of the volcano very moderate; whereas the latter are louder and more frequent, and the former much more extensive and black, or at least dark, when the south-west, south-east, or south winds prevail; and should any one of these three winds blow with violence, the smoke will sometimes spread itself over the whole island, and darken it like heavy clouds in rainy weather. Should this cloud of smoke thus extend itself when the vines of Stromboli are in leaf, if it remains only a few hours, it will not injure them; but should it continue a whole day, or longer, the grapes will not ripen, or at least the vintage will be less productive. The smoke constantly has the odour of burning sulphur, and consequently is very disagreeable and noxious.

This thick and copious smoke, which is commonly accompanied with more violent and frequent eruptions, not only is emitted while the south, south-east, and south-west winds blow, but precedes these winds several days. The people of the country are therefore enabled to foretell the winds which will be propitious or adverse to mariners. They told me that not unfrequently vessels which had anchored at Stromboli during the winter, and proposed to sail because the sea appeared calm and the weather favourable, had been induced to remain longer by the observance of these prognostics, which they had not found deceitful. The knowledge of these indications is not, however, the fruit of the modern observations of these islanders: it is extremely ancient*, and has been transmitted from the most remote ages to the present, from generation to generation, and will probably be delivered down in like manner to the latest posterity. Æolus, who is said to have reigned in these islands, is styled in fable the King of the Winds, probably, as some writers have conjectured, because, from the changes in the smoke and eruptions of the volcano, he was able to predict what winds would blow.

I shall here (if I may be allowed a short digression not unsuitable to my subject) relate the observations which I made relative to the connection between the phenomena of the atmosphere and those of the volcano, during the five-and-thirty days which I remained in the Eolian isles; the smoke of Stromboli by day, and the flames by night, being clearly visible in those islands and the adjacent sea.

Twice within that time, on the 13th of September and the 1st of October, the *Libeccio*, or south-west wind, blew strong. The first time no sensible change was observable in the volcano of Stromboli, though, according to the assertion of the people of the island, the smoke should have collected thicker round the mountain, and the explosions have become louder. The second time, the appearances approached nearer to those they describe.

The *Scilocco*, or south-east wind, blew three times; on the 21st and 26th of September, and the 7th of October. This wind, if we believe the mariners of Stromboli, has a similar effect on their volcano with the south-west; and in fact, on two of the above-

* Those who wish to know the predictions of the ancients, relative to the changes in the air and the sea, deduced from the smoke and fires of Stromboli, may consult the *Sicilia Antiqua* of Philip Cluverius.

mentioned days, while this wind blew, the eruptions were stronger, and the cloud of smoke more extensive; but the third time these effects were not observable.

On the contrary, the north wind, which blew on the 11th and 12th of October, and which, according to these islanders, leaves the volcano at rest, was preceded and accompanied by explosions which were heard in the other islands, and by a large cloud of smoke which covered the half of Stromboli, and rose with a white edge, like that we sometimes observe in tempestuous clouds.

I must add, that sometimes, though not a breath of wind blew, the eruptions were very copious, and the smoke was extremely thick.

These observations render me not much inclined to receive implicitly all that the people of Stromboli so positively assert relative to their volcano; and the less, since the mariners of the other Eolian isles are of a different opinion. When I was at Felicuda, where the eruptions of Stromboli may be very clearly seen by night, those eruptions were very strong, and almost continual, and every one was followed by an explosion, which might be very distinctly heard in that island. I turned to one of the mariners of Felicuda, who stood near me, and asked him what he thought of the prognostics of that volcano. He returned me the following brief sententious answer: *Stromboli non fa marinaio*. Stromboli will not make a seaman. To determine, however, with certainty, whether there are any direct and immediate relations between the changes of the atmosphere and those of Stromboli, and what those relations are, would require a series of observations for several years, made on the spot by some intelligent and unprejudiced naturalist, and these we certainly have not.

I shall now proceed to relate what I observed relative to the volcano on the night of the 1st of October. My residence was in a cottage on the north side of the island, about half a mile from the sea, and two miles from the volcano; but so situated that the cloud of smoke round the mountain scarcely permitted me to see the top of the fiery ejections. I employed more hours of the night in making my observations, than I permitted myself for repose; and the following is a brief summary of the principal appearances I noticed.

The south-east wind blew strong. The sky, which was clear, the moon not shining, exhibited the appearance of a beautiful aurora borealis over that part of the mountain where the volcano is situated, and which from time to time became more red and brilliant, when the ignited stones were thrown to a greater height from the top of the mountain. The fiery showers were then more copious, and the explosions which followed them louder, the strongest resembling those of a large mine which does not succeed properly, from some cleft or vent. Every explosion, however, slightly shook the house in which I was, and the degree of the shock was proportionate to the loudness of the sound. I do not believe that these shocks were of the nature of the earthquake; they were certainly to be ascribed to the sudden action of the fiery ejections on the air, which struck the small house in which I was, in the same manner as the discharge of a cannon will shake the windows of the neighbouring houses, and sometimes the houses themselves. A proof of this is, that the fiery showers always were seen a few seconds before the shock was felt; whereas the house was so near the volcano, that had it been a real earthquake, no interval of time would have been perceptible.

Before the morning rose the fiery light over the volcano increased so much, at three different times, that it illuminated the whole island, and a part of the sea. This light was each time but of short duration, and the showers of ignited stones were, while it lasted, more copious than before.

On the morning of the second of the same month the south-east wind blew stronger than ever, and the sea was greatly agitated. The smoke of Stromboli formed a kind of cap round the top of the mountain, which descended much lower than on the preceding day. The phenomena were the same; but the convulsions of the volcano were more violent. The explosions were very frequent, but always with a hollow sound; and the ejected ashes reached the scattered dwellings of the people of the island. In the morning the ground appeared very plentifully sprinkled with these ashes, as they are called by the natives; but on examination I found that they were not properly ashes, but very finely triturated scorizæ, consisting of very small grains, of no determined form, dry, and rough to the touch, and which crumble into powder under the finger. They are not very far from a vitreous nature, in colour between a grey and a red, semi-transparent, and so light, that some will float on the water. Their levity proceeds from the great quantity of vesicles or pores which they contain, and which causes them, when viewed with the lens, to bear some resemblance to the sea production of unknown origin called *savago* (*savagine*).

The islanders assured me that these eruptions were very inconsiderable, compared with others which had formerly taken place, during which the ashes had, in a few hours, formed a covering over the ground and the houses of several inches thick; and the stones thrown out were scattered over the whole island, to the great damage of the vineyards and woods which were near the volcano, to which the flames communicated*.

As the day advanced, the hope I had entertained that I should be able immediately to visit the volcanic fires of Stromboli greatly diminished; since I must have had to pass a large tract of the mountain entirely covered with smoke, which had extended itself so widely through the air, that it darkened the whole island. I deferred, therefore, my intended journey till the next day, should that prove more favourable, and employed myself in examining the principal productions of the place.

Wherever I placed my foot I found the whole shore, to the east and north-east, composed of a black volcanic sand. This sand is an aggregate of fragments of shoerls, as has been remarked by M. Dolomieu; but when we view it with the lens, we discover, besides the shoerl, which are entirely opaque, and are attracted by the magnet, a number of small transparent and vitreous bodies, of a yellowish green tincture, and which are insensible to the magnet. I was doubtful whether these were likewise fragments of shoerls, but of a different species, or whether they were volcanic chrysolites; their extreme minuteness not permitting me to ascertain their nature by any satisfactory experiment.

This sand extends into the sea to the distance of more than a mile from the shore; as appeared from its adhering to the sunken plummet, when it had been previously covered with tallow: probably it reaches to a still greater distance.

The sea easily penetrates through this sand; for if any part of the shore be dug into a little depth sea water is found, but rendered somewhat more fresh by having left a part of its salts in the sand; as happens to the same water when it issues, drop by drop, through a long tube filled with sand, through which it is filtered. The fishermen of Stromboli, when they are in want of fresh water, frequently dig wells on the shore, and drink the water these afford.

* These showers of sand and pulverized scorizæ seem to be inseparable from volcanic eruptions, and to be copious in proportion as the latter are violent. Of this we have an example in the eruption of Etna in 1787, when the sand was carried as far as Malta. How great a space was covered by the sand ejected from Etna, in the eruption of 1669, has been already noticed. There is likewise no eruption of Vesuvius which is not accompanied by similar showers of sand and ashes.

This sand, as has been already said, occupies that part of the island which fronts the east, and the north-east, extending on the one side to the sea, into which it stretches, and on the other to the summit of the mountain. It owes its origin partly to the immediate ejections of it by the volcano, and partly to the pieces of scoriaceous lava thrown out by the same, which being, as has been said, extremely friable, and greatly abounding in shreds, easily decompose and become pulverized in this sandy matter. In fact, nothing is more usual than to find in it fragments of this scoriaceous lava, of various sizes. This sand is found principally near the volcano, where both it and the scoriaceous lavas from which it is formed fall in the greatest quantities; but as, from its fineness, it is easily moveable, it is carried by the wind to the valleys and lower grounds quite to the sea.

This, however, is only the thin upper coating of those parts of Stromboli which it covers, as under it lies the firm texture of the island; I mean the solid lavas, which are visible on several steep descents, that have been stripped of the sand either by the action of the rain-water, or that of the winds.

On the same day I made the circuit of a great part of the base of the island, which is about nine miles in circumference, and found the same solid constructure; a small tract of tufa on the north side excepted, which descends to the sea.

In this excursion I carefully examined the course and direction of the lavas, and was convinced that they all had flowed from the steepest summit of the mountain, under different angles of inclination, passing one over another, and thus forming a succession of crusts or strata like, in some measure, the coatings of which an onion consists. In several places where the lava has entered the sea, these crusts may be seen lying one over the other, some of them broken or separated by the shock of the waves.

These facts strongly induced me to suspect that the crater of Stromboli had anciently been situated on the summit of the mountain, and that the lavas which had principally contributed to the production of the island had flowed from that crater.

On the sides of Etna and Vesuvius mountains of an inferior order arise, which likewise owe their origin to fire: Stromboli, on the contrary, is entirely a single mountain, except that its top is divided into two summits. Hence it appears that there have been none of those eruptions in its sides, which generate lesser mountains or hills, of a conical form.

But this crater, which I conjecture, and shall hereafter prove actually to have existed, has long since given place to that which at present burns. Among the various enquiries which I made of the inhabitants of Stromboli, I interrogated them with respect to the precise situation in former times, as far as they had heard or could remember, of that burning gulf which throws out fire and red-hot stones; and they all agreed in assuring me that they had never known it in any other place but that in which it now is, that is to say, about half way up the mountain.

I lodged with a priest who was now approaching the decline of life, who not only confirmed this account, but adduced the authority of his father, who had died at the age of eighty, and who had told him that he had heard, from persons older than himself, that in their time the situation of the burning furnace was the same as at present.

About a mile from the mouth of the volcano lives a peasant, who from his cottage can distinctly see every burning eruption; and though he frequently feels no little alarm, when the fragments of lava are thrown quite to his doors, and the fire reaches his little vineyard, yet, from long habit, and love for the place of his birth, he still continues to reside there. When I asked this man what was the situation of the burning cavern in former times, he returned me the same answer I had received before; alleging, in confirmation of its truth, the testimony of his ancestors who had resided on the same spot. And as to the

showers of ejected matter, all of whom I enquired unanimously assured me that they had always seen them such as they at present appear, except that they might be sometimes stronger and sometimes weaker.

All these testimonies appear sufficiently to prove that the volcano of Stromboli has burned for more than a century where it now burns, without any sensible change having taken place in its situation.

I shall here make a few remarks on the account which Sir William Hamilton has given us of Stromboli, agreeable to my promise in the introduction to this volume.

He tells us, that on his return from Messina to Naples he met with a calm while among the Lipari islands, which lasted three days. "Hence," says, he "I had an opportunity clearly to ascertain that all these islands have been formed by eruptions. That which is called Volcano, is in the same state in which Solfatara now is. Stromboli is a volcano which has preserved its vigour entire, and consequently a form more pyramidal than the rest of the islands. We frequently saw burning stones thrown from its crater, and lava issuing from the sides of the mountain, flow down into the sea."

This description is accompanied by a plate, which is the thirty-seventh plate of the *Campi Phlegreæi*, and represents the mountains of Stromboli. In it the crater is represented at the summit, throwing out flames and ignited stones; and on the sides are seen streams of liquid lava descending into the sea. That the observations of this respectable naturalist on volcanos merit the most attentive consideration, the work I have cited furnishes numerous and incontestable proofs: that impartiality, however, which ought to be inseparable from philosophy, compels me to declare that what he has said of this mountain is not exactly consonant to fact. From the time of his observations to that of mine, only twenty years have elapsed. If, therefore, the crater of Stromboli had then been at the summit of the mountain, and had it thrown out thence its showers of fiery matter, the inhabitants of the island would surely have remembered the fact when I was there: but when I told them that, twenty years before, the burning gulph of their mountain was not situated half way up its side, but at the top, they all positively asserted that this must be a mistake.

The same they affirmed of the assertion that lava had issued from the sides of the mountain, and flowed down into the sea; when, to hear their answer, I told them that this had been observed at the same time. Indeed, it seems very extraordinary that I should never have met with any traces of these currents of lava, though I so carefully examined the island.

I am of opinion that Sir William fell into these errors from not having landed at Stromboli, but only viewed it at sea at a distance, where he might easily be deceived by some illusion of sight. In fact, had he landed, it is not to be doubted but he would have mentioned it. That he made his observations at some distance from the island is sufficiently indicated by these words: "Stromboli is a volcano which has preserved a form more pyramidal than the rest of the islands." When Stromboli is seen at a distance it certainly appears of this pyramidal, or more properly conical form, much more than when seen near; for then it appears bifurcated, nearly similar to Monte Rosso, on one of the sides of Mount Etna.

The distance has likewise rendered him inaccurate relative to the island of Volcano. Had he landed there and examined the place, he would not have compared it to Solfatara. We shall see in Chap. XIV. of this Work, the difference of the states of the two volcanos.

The figure, more or less conical, of the Eolian isles, as seen from the sea, while Sir William sailed among them, the smoke which he saw rise from some, and the fiery eruptions

tions of others, suggested to him, I imagine, the idea that "they have all been formed by eruptions," as he has not adduced a single local fact in support of that opinion.

On the 2d of October I made the observations I have already related, at the foot and the lower part of the sides of Stromboli. The following night the volcano exhibited phenomena similar to those of the preceding, and the next day (the 3d) proved favourable to my wishes to approach nearer to the burning crater. It now smoked but little, and only a few explosions, and those scarcely audible, were heard. The sky was free from clouds, and the sea calm.

The crater may be approached by two several ways; either by taking a boat, and observing it from the sea; or by land, passing the top of the mountain, and proceeding as near as possible to the edges of the crater. I resolved to observe it, first from the water, taking advantage of the calm which then prevailed, as I well knew how frequently that sea is violently agitated by tempestuous winds.

After having coasted the island the distance of three miles and a half towards the north, I arrived opposite the place where the showers of ignited matter fall into the sea. The side of the mountain is here a steep declivity, almost perpendicular, about half a mile broad at the bottom, and a full mile long, terminating above in a point, and forming an isosceles triangle, the base of which is washed by the sea. The apex of the triangle is at the brink of the crater. Before I reached the steep declivity, I observed a great cloud of dust extending along it, of which I could not assign the origin; but on a nearer approach I discovered the secret. It was evidently produced by pieces of lava, of various sizes, which rolled down, and in their descent raised the fine sand with which this declivity is covered.

While I was intently observing this object, the mountain suddenly made an explosion. A quantity of pieces of lava, of a dark-red colour, enveloped in smoke, were ejected from the top of the precipice, and thrown high into the air. A part of them fell again upon the declivity, and rolled headlong down, the smaller preceded by the greater, which after a few long bounds dashed into the sea, and on entering the waves, gave that sharp hissing sound which, in a lesser degree, is produced by a bar of red-hot iron which a smith plunges in the water. The lesser fragments of lava followed, but from their lightness and the hindrance of the sand, rolled slowly down the declivity, which was then obscured by a small cloud of dust; and striking against each other produced nearly the same sound as is occasioned by large hailstones falling on the roofs of houses. In a few moments after another explosion followed; but this was a small one, without any sensible noise, and the few pieces of lava that were thrown up rose to but a small height, and fell back into the crater. Two minutes after a third eruption took place, with a much louder explosion than the first, and a far more copious ejection of lava. The eruptions which I afterwards observed, and which were innumerable in the space of three hours that I continued there, exhibited the same appearances.

These observations caused me to doubt of the truth of an opinion to which I had inclined before my arrival in the island. I mean the periodical intermissions which travellers ascribe to the eruptions of Stromboli, and which I supposed I had observed in the night in my voyage from Naples to Sicily. When from the bottom of this precipice I had the volcano and its fiery hail before my eyes, I do not indeed mean to affirm that it continually raged and thundered equally; but the intermissions between its ejections were so short that they rarely exceeded three minutes, though by the accounts of these travellers they are considerably longer. Yet was I willing still to suspend my judgment, until I should have had a nearer view of the crater on the mountain itself.

The following night I returned to the same place, persuaded that I should see new objects to excite my admiration; and in fact, the scene I beheld appeared to me as delightful and astonishing, as it was noble and majestic. The volcano raged with more violent eruptions, and rapidly hurled to a great height thousands of red-hot stones, forming diverging rays in the air. Those which fell upon the precipice, and rolled down it, produced a hail of streaming fire, which illuminated and embellished the steep descent, and diffused itself around through a considerable space.

But, independent of these ignited stones, I remarked a vivid light in the air, which hovered over the volcano, and was not diminished when that was at rest. It was not properly flame, but real light reverberated by the atmosphere, impregnated by extraneous particles, and especially by the ascending smoke. Besides varying in its intensity, it appeared constantly in motion, ascended, descended, dilated, and contracted, but constantly continued fixed to one place, that is, over the mouth of the volcano, and clearly shewed that it was caused by the conflagration within the crater.

The detonations in the greater eruptions resembled the distant roar of thunder; in the more moderate the explosion of a mine; and in the least they were scarcely audible. Every detonation was some seconds later than the ejection. This likewise was observable by day.

I remained that night two hours on the water at this place, and the eruptions were so frequent, and with such short intermissions, that they might be said to be continual.

During both these visits thick showers of sand and fine scoriæ fell into the sea, and falling on my hat, which was of oil-cloth, made a noise like a small hail.

The five sailors who had the care of the boat in which I was, and some other natives of Stromboli who were with me, and whose occupation frequently brought them to that part of the sea, told me that the volcano might now be considered as very quiet; assuring me that in its greater fits of fury red-hot stones were frequently thrown to the distance of a mile from the shore, and that consequently at such times it was impossible to remain with a boat so near the mountain as we then were. Their assertion appeared to me sufficiently proved by a comparison of the size of the fragments thrown out in the explosions I now witnessed, with that of those which had been ejected in several former eruptions. The first (many of which had been stopped at the bottom of the precipice by other pieces of lava, and were scoriaceous lavas, approaching to a globose form) were not more than three feet in diameter; but many of the fragments thrown out at other times, of similar quality to them, and which lay in large heaps on the shore, were some four some five feet in diameter, and others even still larger.

Travellers have generally asserted that the volcano of Stromboli has for a long time discharged its fury into the sea, without causing either alarm or injury to the inhabitants of the island. The eruptions, however, fall equally on every side around the volcano; though at this place they only fall into the sea, and in that sense their assertion is well founded.

But the people of Stromboli, and indeed almost all the inhabitants of the Eolian islands, entertain an opinion, equally amusing and paradoxical, by which they explain why that part of the sea which is contiguous to the precipice is never filled up, notwithstanding the immense quantities of stones which have been continually falling into it from time immemorial; where, instead of a peninsula having been formed by those stones, as might naturally have been expected, the sea is generally said to have no bottom. To explain this apparent paradox, these good folks affirm, with the most entire conviction that what they say is true, that the stones of the volcano which fall into the sea are attracted again by the mountain through secret passages; so that there is a constant circulation from the volcano to the sea, and the sea to the volcano.

I did not attempt to controvert their favourite hypothesis, which would have been to no advantage, and to no avail; but I caused that part of the sea to be sounded, and found it a hundred and twenty-four feet deep, which, though it is not a great depth in the Mediterranean, is certainly, in this place, somewhat surprising; as it was rather to be expected that the continual discharge of stones into it should have produced a little hill, which would at last have emerged above the waves.

Thinking this an object deserving some inquiry, I determined to make my observations on the spot, and I flatter myself I have discovered the true explanation of the difficulty. The stones which have formerly been thrown into the sea by Stromboli, and those which that volcano still continues to eject, are of the same kind; that is, as I have already said, scoriaceous lava. These, from their being porous and little cohering in their internal structure, easily crumble, and are converted into sand, as is seen on the east and north-east parts of the islands; and this separation of parts is produced by the simple action of the elements of air and water, and the rolling of the pieces over each other in their descent. A similar trituration is effected at the place where the lava falls into the sea. The steep descent I have so frequently mentioned is covered with this pulverized lava quite to the sea-shore. A part, therefore, of the scorix is already reduced to powder before it touches the water; and the remainder, which falls into the sea in whole pieces, must soon undergo the same trituration, from the action of the waves which beat so violently in various directions.

I must here repeat that the sea which surrounds the islands of Lipari, and especially that part of it which washes Stromboli, is subject to very frequent and very violent storms. The two times that I observed the volcano from the sea, near the precipice, though it was what the sailors called a perfect calm, our boat was so tossed that it was necessary to make use of the oars to prevent its being carried from the place. This agitation of the water, likewise, extends here to a considerable depth, as is sufficiently proved by several observations. The inhabitants of Stromboli, besides nets, make use of wheels, or a kind of wicker traps, to catch fish. Into these they put stones, and sink them to the bottom, leaving a sort of floating buoy to point out where they lie; but to prevent their being carried away by the waves, in a storm, it is necessary that they should be sunk to the depth of a hundred and forty feet; otherwise they would be dashed against the rocks under the water, and lost. As the depth, therefore, of that part of the sea into which the scorix fall is less than this, that is, only a hundred and twenty-four feet, they must, by the shocks of the tempestuous waves, no doubt, be soon broken, reduced to sand, and carried away by the violence of the current. It is not, therefore, so extraordinary, as it may at first view appear, that this part of the sea should be scarcely ever filled by the scoriaceous lava which is continually falling into it.

I have said, *scarcely ever*, because I was told, by some of the people of Stromboli, that about forty-four years ago the volcano threw out such an immense quantity of scorix, that it caused a dry place, to use their expression, in the sea. A kind of hill rose above the waters, which remained from March to the following July, when it gradually diminished, by the action of the waves, and at last disappeared. The hill was formed precisely in that place where, according to the popular report, the sea has no bottom. This fact not only is agreeable to the hypothesis I have offered, but is a strong confirmation of its truth.

The observations I had been able to make on the volcano from the sea appeared to me interesting and instructive; but I flattered myself, that more of its secrets would be revealed to me, if I made a nearer visit to it, over the mountain itself. The way thither lay on the east side of the island, it being impossible to approach it from the sea, both
from

from the incessant showers of heated stones, and the insuperable precipices on both sides of the steep and almost perpendicular declivity. I began this journey on the 4th of October, and was much encouraged by the state of the volcano, to hope I should succeed according to my wishes, as scarcely a shade of smoke covered the highest points of the island. To arrive there it was necessary to make a journey of a mile and a half, reckoning from the sea-shore. The first mile is not disagreeable, but the remainder of the way, though not dangerous, is very difficult; both from the extreme steepness of the ascent, from the impediment of the sand, in which the leg sinks almost up to the knee at every step, and from the loose and moveable scoriæ, which render the summit of the mountain extremely rugged and slippery.

Having reached this summit, I found myself on one of the two points which render Stromboli bifurcated, though, when viewed at a distance it appears conical. This summit is situated to the north-east; the other, which is somewhat higher, inclines to the south-west. As nearly as I could estimate it, the altitude of the latter above the sea was about a mile.

To pass from one summit to the other, we go over an extensive plain, which appeared to me to deserve the most attentive examination. We first observe white fumes, which arise from five apertures, not very distant from each other. These fumes have a strong sulphureous odour, and, gliding along the ground, are insufferable from their extreme heat. The five apertures appear sprinkled over with small crystals of sulphur, and variate of ammoniac (sal-ammoniac). The ground here is a mixture of sand and scoriæ; and the sand, as well below as on the surface, is moist, which may arise from two causes, either from the subterraneous waters being raised in vapour by the volcanic fire, as water constantly accompanies burning volcanos; or from the union of the acid of sulphur with the humidity of the atmosphere.

The ground in the vicinity of these fumes is very hot; and wherever a hole is made with a stick, a new stream of smoke arises, which is not fugitive but durable. If you stamp with the foot, a feeble kind of echoing sound is heard, which I do not imagine to be occasioned by any subjacent gulf or abyss, but only from the very loose texture of the ground, which is only composed of sand and very porous scoriæ; in the same manner as in several parts of the Apennines, where the ground is light and loose, I have heard the same kind of sound on stamping with the foot. I am, therefore, of opinion, that this hot fuming ground has a communication with the volcano, by narrow winding cavities which afford a passage to the vapours.

Proceeding to the west, over the plain which extends between the two summits, another object arrests still more the attention of the observer. The summits themselves have no crater, nor any vestiges of one; but these vestiges are sufficiently evident on the sides of the plain; which here sinks into a cavity, which may be about three hundred feet in length, from east to west, above two hundred in breadth, and one hundred and sixty in depth. The bottom is covered with sand and scoriæ, not of a very ancient date, but the produce of the ejections of the present volcano. The internal sides of the cavity, however, are not of these materials; they are formed of stratas of lava which bear the most evident marks of the highest antiquity. I am, therefore, of opinion that this was the first and largest volcano of Stromboli, which formed the texture of the island by its lavas, and which, in a great degree, had been filled up and destroyed by the earthy depositions of the rain-waters, the matter ejected into it by the present volcano, and, perhaps, by the falling in of its own sides. This opinion is confirmed by the direction of the lavas, all of which appear to have descended from the centre of the summit; and this direction, when I examined the lower parts of the island,

island, induced me to conjecture that the principal volcano had formerly existed on the summit.

These remains of an ancient crater lie between two points of the mountain which were probably formed when the lava gushed forth, in the same manner as the volcano of Monte Rosso formed two distinct hills. The bottom of this higher and more ancient crater of Stromboli, in two places, emits fumes, which do not differ in their quality from those that have been mentioned above.

From these two summits the ejections of the present crater are distinctly observable, as it is not distant more than half a mile to the north; and we there evidently perceive that it lies about half way up the mountain, the edges obscurely projecting, and forming a cliff. Here I was better able than on the sea to estimate, by the eye, the height to which the ejected matter ascends; and can affirm that, in the more violent eruptions, it rises to the height of half a mile, or even higher, as many of the ignited stones were thrown above the highest summit of the mountain. They did not, however, reach me, but fell, partly on the precipice which descends to the sea, and partly into and around the crater. The ejections, indeed, which I call the most violent, were certainly very moderate, compared with those which the two natives of Stromboli who served me as guides, assured me they had witnessed, at other times, from that summit, when, as they said, we should not have been safe at the distance and height at which we were; and the numerous scoriæ around us, the produce of former eruptions, fully confirmed the truth of what they asserted. They likewise deserved attention when they affirmed that, at those times, the stones were thrown to more than a mile in height.

From the summit of Stromboli I descended about a quarter of a mile down the mountain towards the volcano, and took my station on an eminence where I had a much more distinct view of the crater, and every eruption; and was more than ever convinced that the intermissions which have been so frequently and positively ascribed to it do not exist. The explosions succeeded each other with such rapidity, that there was rarely the interval of three or four minutes between any two. They, however, differed greatly in their strength, which has probably occasioned the mistake of travellers relative to the intermissions of Stromboli. The highest ejections, as I have already said, did not rise less than half a mile in height; while the lowest did not reach the height of fifty feet, and the matter fell back into the crater. Between the greatest and the least there were ejections without number; and the intensity of the sound corresponded to the quality of the ejection. At a considerable distance from the volcano the moderate and smaller eruptions, with their accompanying detonations, were not perceptible, but the greater only; which not being so frequent, may easily induce us to form the false opinion that this burning mountain has considerable intervals of repose. But when we approach nearer, we distinctly perceive the difference of the ejections, and the error of such a supposition. Nor can the fact I observed be considered as accidental, since the two guides I took with me, who are accustomed to conduct strangers to this place, as well as other natives of Stromboli, who frequently pass that way to cut wood, all agreed that the eruptions of this volcano are continual though they are sometimes stronger and sometimes weaker.

At a distance, there was a very perceptible interval between the appearance of the eruption and the detonation; but here, the difference of time between them was scarcely any. The fragments of lava, as they flew, produced a hissing sound; and many of them acquired in the air a globose figure, an evident proof of their fluidity; but before they came to the ground they were hardened, retaining the same figure, while they bounded down the cliffs and precipice. From the little eminence on which I stood I could in part

discover the internal sides of the crater, though I could not see far into it; but appearances seemed to indicate that it could not be very deep; for, attentively observing the fragments of lava that fell again immediately into the crater, I remarked that almost as soon as they had entered it I heard the sound produced by their collision against the substance on which they fell. This sound resembled that which would be caused should water, or rather some denser fluid, be struck with a number of staves or poles. But of this phenomenon, and others more deserving notice, I shall treat presently more at length, when I come to speak of other secrets of the volcano which were disclosed by a nearer approach.

Here it is proper to notice the fumes which exhale from this mountain, as they have an immediate relation to the volcano. Though when I observed them from the sea they appeared to me of little importance, when I saw them from the summit and body of the mountain they exhibited a thick cloud, several miles in length, exhaling a strong smell of sulphur, which, however, was not incommodious to me, as they were raised several poles above the surface of the ground. This cloud entirely obscured the sun, was black in the middle, but whitish at the edges, and more or less clear according to the different inclinations, refrangencies, and reflections of the light. It appeared to me that this immense mass of smoke extended more than a mile in height. Though it continually issued in a considerable quantity, its volume did not increase, since as much was dissipated in the upper regions of the air, as rose from the earth. It derived its origin from a threefold source. First, as often as the crater threw up stones, a cloud of grey smoke immediately arose, which was thick in proportion as the ejection was violent and copious. Secondly, to the west of the crater, and at a little distance from it, are some obscure apertures, through which arise, like white clouds, not less than a hundred and fifty streams of smoke, which, though they are distinct at first, mingle as they rise, and form one cloud.

Lastly, to the east of the crater, there is a large and deep cavern from which ascends a column of dark and very thick smoke, about twelve feet in diameter, which at that time, from the stillness of the air, arose perpendicularly, moving in large circles through a considerable space, and afterwards insensibly rarefying as it removed to a distance. This cavern while I was there threw out no stones, nor had it ever been known to do so, as my guides assured me, though it had always emitted a prodigious quantity of smoke. The causes, therefore, of this smoky cloud were these three, of which the first and third are continual, and the second acts as often as the crater ejects its burning matter: nor can there be any doubt that they are all three connected with the volcanic gulph which makes its greatest discharge from the mouth of the crater, and a much smaller from each of the sides.

Not satisfied with the observations I had already made, my curiosity impelled me to attempt further discoveries. From the pointed rock on which I stood, I could only see the edges of the inside of the crater. I considered, therefore, whether it might not be possible to obtain a sight of the lower parts likewise; and, looking round me, I perceived a small cavern, hollowed in the rock, very near the gulph of the volcano, into which the rock above prevented the entrance of any burning stones, should they be thrown so far. It was likewise so elevated, that from it the crater was open to my view. I therefore hastened to take my station in this cavity, taking advantage of one of the very short intervals between the eruptions. To my great satisfaction, my expectations were completely fulfilled; I could here look down into the very bowels of the volcano, and Truth and Nature, flood, as it were, unveiled before me. The following is the description of the objects which presented themselves to my wondering eyes.

The edges of the crater, which is of a circular form, and not more than three hundred and forty feet in circumference, are composed of a confused mixture of lavas, scoriæ, and sand. The internal sides contract as they descend, and assume the shape of a truncated inverted cone. These sides, from the east to the south, have only a gentle declivity, but in the other parts, they are very steep. In many places, they appeared incrustated over with yellow substances; which I imagine to be the mugate of ammoniac (sal ammoniac) or sulphur.

The crater, to a certain height, is filled with a liquid red-hot matter, resembling melted brass, and which is the fluid lava. This lava appeared to be agitated by two distinct motions; the one intestine, whirling, and tumultuous; and the other, that by which it is impelled upwards. This motion in particular merited to be examined with attention. The liquid matter is raised, sometimes with more and sometimes with less rapidity within the crater, and when it has reached the distance of twenty-five or thirty feet, from the upper edge, a sound is heard not unlike a very short clap of thunder; while at the same moment a portion of the lava, separated into a thousand peices, is thrown up, with indescribable swiftness, accompanied with a copious eruption of smoke, ashes, and sand. A few moments before the report, the superficies of the lava is inflated, and covered with large bubbles; some of which are several feet in diameter, which bubbles presently burst, and, at the same instant, the detonation and fiery shower take place. After the explosion, the lava within the crater sinks, but soon again rises as before, and new tumours appear, which again burst and produce new explosions. When the lava sinks, it produces little or no sound; but when it rises, and especially when it begins to be inflated with bubbles, it is accompanied with a sound, similar, in proportion to the difference of magnitude, to that of a liquor boiling vehemently in a caldron.

I remained in this cavity, which so conveniently sheltered me from danger, an hour and a quarter; during which time, besides the observations I have already stated, I was enabled to make the following:

Every ejection, however small, was not only accompanied by an explosion, but was proportionate to it in its intensity. Hence, as the stones which are only thrown to the height of ten or twenty yards above the crater, are not visible to the eye at a distance, so neither is the detonation, by which such ejections are accompanied, sensible to the ear.

In the smaller and moderate ejections, the stones fell back into the crater, and at their collision with the fluid lava produced, as, I have already said, a sound similar to that of water struck by a number of staves; but in the greater ejections, a considerable quantity of them always fell without the mouth; though that lying low, and surrounded with heights, the greater part of them rolled again into it. Here, however, we must except that side of the crater which lies immediately over the precipice before described, since there every stone which fell without the crater bounded down the declivity, and descended to the sea. When I viewed this precipice from the water, it appeared to me to terminate in a point; but here I distinctly perceived, that, where it reached the volcano, it was more than sixty feet in breadth.

The redness of the larger ignited stones, (which were only pieces of scoriaceous lava,) was visible in the air, notwithstanding the light of the sun. Many of them clashed against each other and were broken, which happened only when they were at a certain height; for, when they were nearer to the volcano, they frequently adhered, on touching each other, in consequence of the fluidity they retained. The lava of the crater, when it rose or fell, emitted but little smoke; but a great quantity when it exploded.

The smoke issued from its fissures, but almost immediately disappeared after the explosion. It might be compared to the smoke produced by the firing of gunpowder, and which appears and disappears with the flash. This smoke appeared to me extraneous to the lava; at least, the fragments of the latter neither smoke as they fly in the air, nor after they have reached the ground.

In consequence of the alternate rising and sinking of the lava, according as it is inflated or makes its discharge, the depth of the crater cannot be considered as constant. When the lava is at its height, it may be about five and twenty or thirty feet deep, and when it has subsided, about forty or fifty; the greatest rising of the lava may, therefore, be estimated at about twenty feet.

If we attentively examine the edges of the crater, we can discover no signs that the lava has ever overflowed the brink, much less that it has poured a torrent down the steep side of the mountain.

Though the ejections of the larger and heavier stones have short intermissions, those of the lesser and lighter have scarcely any. Did not the eye perceive how these showers of stones originate, it would be supposed that they fell from the sky: the noise of the more violent eruptions resembling that of thunder, and the darkness occasioned by the mounting cloud of smoke, present the image of a tempest.

Such were the phenomena of the volcano of Stromboli, which I observed with the utmost convenience from the station I have described. Though it is impossible perfectly to portray such astonishing scenes by any drawing; the representation I have given in the plate of a part of Stromboli, may enable the reader to form a more adequate idea of the principal objects.

In this plate A A A represents the vast column of smoke which, to the east of the mountain, issues from a deep and spacious cavern, moving directly upward. B B B, the numerous streams of smoke arising on the opposite side, above which I am myself represented, standing in the cavity of the rock which I have described, and looking down on the showers of fiery matter ejected from the mouth of the crater, which has an opening in front to afford a view of the internal parts of the crater and the fiery ejections. A part of the latter are represented as falling at the top of the precipice which joins to the edges of the volcano, down which they bound, and precipitate into the sea.

To the appearances already described, which I observed by day, I shall add others that presented themselves by night; the cavity in the rock, which I have before mentioned, affording me the convenience to make my observations, likewise at that time, in perfect security.

The surface of the burning lava within the crater never emitted any sensible flame, not even when the bubbles upon it burst with an explosion; but it shone with a glowing vivid light, and resembled, in its appearance, melted glass in a furnace. From this surface the light diffused itself around, and shot upwards, but with irregularity, sometimes rising and sometimes falling, according, as it appeared to me, the lava itself rose or sunk.

This light in the air became more vivid at every ejection of ignited stones; and was likewise increased in intensity by the quantity of sparks that accompanied each ejection which were produced, in part, from the breaking of a number of the stones, in their clashing against each other.

Such was the appearance of the volcano during the night; but while I was observing it in my secure recess, and contemplating the astonishing spectacle, an unexpected phenomenon excited in me much more alarm than pleasure. The eruptions of the volcano suddenly ceased, the boiling lava sank lower than usual, without again rising, and

lost its vivid glowing redness; while at the same time the numerous streams of smoke, to the west of the volcano, which before rose in silence, began to issue with a loud hissing sound, and the apertures from which they exhaled to shine with a bright colour of fire. I know nothing to which the sound produced by the issuing of these fumes can be more properly compared than the blowing of large bellows into a furnace by which metals are melted; such as I have seen at Zalatna in Transylvania, and Schemnitz, and Kremnitz, in Hungary; except that the volcanic bellows roared a hundred times louder, and almost deafened the ear.

The unexpected change within the crater, and my nearness to those fumes, which, as they abounded with highly noxious sulphureous vapours, I feared might have mischievous effects, alarmed me so much, that I was on the point of abandoning a place which appeared so dangerous, and seeking safety in flight; had not the guides encouraged me to stay, assuring me, from their repeated experience, that my fears were groundless. "The burning matter which boils within the cavern," said one of them, "always contains a great quantity of air. This air has at present left the fire, and passed through subterraneous passages to those apertures from which the smoke issues, and which we call *respiri* (vent-holes) because there the air from the fire finds vent. But there is nothing to fear: the noise of these vent-holes will soon cease, and the crater boil and throw out burning matter as before."

My companion gave me this account in such a manner as shewed he had himself no idea of danger, and the event happened precisely as he foretold. In a very short time the fumes and the volcano returned to their former state. My two guides afterwards assured me that this appearance very rarely happened, and when it did was never of long duration. From this discourse, and other conversation which I had with them afterwards, I perceived that these two natives of Stromboli were better acquainted than any other person with the secrets of their volcano, and the explanation they had given me of the phenomenon I had witnessed, appeared to me extremely judicious.

I think it cannot be doubted that the bubbles which arise in the liquid lava, and burst with an explosion, are generated by an elastic fluid there collected and confined, which being dilated by the strong action of the fire, and incapable easily to disengage itself from the tenacious lava, violently bursts it, and rushes above the crater, producing at the same time a detonation. Hence originate the showers of ejected matter, which are more or less copious, and rise to a greater or less height, in proportion to the greater or less quantity and strength of this fluid; which escaping, at every explosion, from the upper parts of the lava, these sink, and again rise when they have received a fresh supply. Supposing, then, the source of the fluid confined, from time to time, within the liquid lava, to be inexhaustible, we shall easily perceive that the eruptions must be incessant. If from the extreme tenacity of the lava, its want of sufficient fluidity, or any other unknown cause, it should be unable to burst it, and open itself a passage within the crater, it will make its way through the subterraneous channels to those apertures from which the fumes ascend, through which it will issue, with considerable noise, till the obstacle it met with in the lava be removed. In such a case the lava will sink without again rising during this interval, and will lose its fiery redness from being no longer urged by the energy of the elastic fluid; while, from the contrary reason, the apertures from which the fumes issue will acquire a glowing redness, because the fluid escapes through them with violence.

Such were the ideas which floated in my mind, when, the night being considerably advanced, I returned home, with my imagination strongly impressed with the objects I had seen. These ideas I afterwards, in a cooler moment, recalled to a rigorous examination,

mination, enquiring, especially, what might be the nature of volcanic gases, not only of such as are imprisoned in the liquid lavas of Stromboli, but of those which are inseparable from other burning volcanos; as likewise in what manner they act, to produce the ejections; objects which appear to me to be at once new and highly interesting. These enquiries produced a number of observations and connected experiments, which it will be more proper to present the reader in another part of the work than in this place; both because they regard volcanos in general, and because to detail and explain them would lead me too far from my present subject, which is to speak of the objects I observed in this volcanic country. As I have, therefore, given some account of the nature and conformation of Stromboli, and the most remarkable phenomena of its volcano, I shall proceed to describe, in the following chapter, the different substances of which this island is composed.

CHAP. XI. — STROMBOLI, CONTINUED.

The component substances of this island are scorice, lavas, tufas, pumices, and specular iron.— Three kinds of scorice.—The first kind has some degree of vitrification.—Stromboli produces no true vitrifications or enamels.—The name of pumice not suitable to this kind of scorice.—Its ejection, and the figure which it sometimes takes in the air.—Second kind of scorice, for which Stromboli is remarkable.—Its decomposition where the acid-sulphureous vapours prevail.—The substances thrown out of Stromboli more acted on by the fire, than those ejected by other volcanos.—The activity of the fires of Stromboli has long remained the same.—False opinion of some, that volcanic glasses derive their origin from re-melted lavas.—Third kind of scorice.—All these three kinds of scorice originally porphyry with a horn stone base.—Enumeration of the different lavas of Stromboli.—Its tufas and pumices.—Specular iron.—Dangerous situation in which the latter is found.—Its crystallization, beauty, and variety.—Flakes of sulphate of lime (selenite or gypsum) incrust some of these crystallizations, which consist of very thin leaves of iron fastened on each other.—Hardness, and, at the same time, fragility of this iron.—Changes produced in it, when exposed to the fire of the furnace, and that excited by oxygenous gas (dephlogisticated air).—Decomposed lava the matrix of this specular iron.—Cause of this decomposition.—Comparison between this specular iron discovered by the author, and that noticed by others in volcanic matters.—This specular iron produced in the dry way.—Rareness of it in volcanic countries.—Sulphurous acids produce no change in the iron of Stromboli.—Its antiquity.—The island of Stromboli formed by rocks of porphyry, melted by subterraneous conflagrations, and thrown up by the sea.—Different porphyries of countries not volcanic exposed to the fire of the furnace, to compare the changes caused in them by that with those produced by the volcanic fire.—The epoch of the first conflagrations of Stromboli anterior to all history.—Few notices left of them by the ancients.—Strabo's accounts of Stromboli and Volcano.—The eruptions of the latter mountain must have been more frequent and stronger, in the time of that geographer, than at present.—Wind which, according to Diodorus Siculus, blew from these two islands.—Mistake of Cluverius, that in his time the crater of Stromboli was at the summit of the mountain.—The most ancient epoch of the conflagration of Stromboli, known to us from history, anterior to the Christian era by about 290 years.—Enquiries relative to the matters which have so long maintained this conflagration. *

THE substances of which this island is formed, at least so far as I have been able to discover, are scorice, lavas, pumices, and specular iron; as likewise the sand of which I have

have sufficiently spoken in the preceding chapter. Of the scoriae there are three kinds: the first is extremely light, of a dark grey colour, and on it the violence of the fire has taken most effect. Some small pieces are coated over with a true varnish of glass; the others in general consist of semi-transparent vitreous threads, some of which are as fine as the threads of a spider's web. We may, therefore, conclude that the matter was in a state of semi-vitrification, when its parts were separated by the elastic fluids, and rendered extremely porous; but that some of it, instead of separating, lengthened into threads, which hardened on its contact with the air. We perceive likewise, that only a degree more of heat was necessary to render the vitrification complete.

Of the various bodies ejected by the volcano of Stromboli, this kind of scoria appears to be that on which it has acted with most effect. It has not, however, been changed into a true glass, if we except some pieces of very inconsiderable size. The conflagration of Stromboli has never, therefore, arrived at this degree of violence, as I could not find throughout the whole island other vitrifications or enamels. The natives themselves indeed sufficiently satisfied me of their non-existence, as those of the neighbouring island of Lipari are well known to the inhabitants of all the Eolian isles, under the common name of *ferizzi*.

But may not the scoria here described as in a great degree filamentous, be considered as a species of pumice? I certainly do not perceive in it the distinguishing characteristics, for the fibrous quality alone is not sufficient. I conclude, therefore, that when any stone, in consequence of the action of volcanic fires, passes into the state of pumice, certain determinate conditions are required, either in it or in the degree of heat to which it is exposed, or perhaps in both, which are not yet sufficiently known to volcanic naturalists, notwithstanding the attention they have bestowed on the subject. Of this the present scoria may furnish an example. The stone which was its base, by the action of fire, had been dissolved into lava within the crater; and this lava by the action of elastic fluids, and probably by that likewise of sulphur, has become a filamentous substance, and as its filaments are vitreous, appears to shew an immediate disposition to change into pumice; but it was not formed by nature to become that substance, as appears by the small pieces which have assumed the thin vitreous coating. Were the fires of Stromboli more violent and powerful, the stones which are melted and thrown out would pass from the state of scoria to that of perfect glass, without first acquiring the nature of pumice.

The scoriae of this kind are never thrown by the volcano in large pieces to any great distance, from the great ease with which they break and pulverize.

It is worthy of remark, that not a few pieces of these scoriae incline to a cylindrical figure, and that their filaments are parallel to the axis of the cylinder. Both these effects, in my opinion, may be attributed to the projectile impetus received from the elastic fluids when forced from the lava in the crater; those pieces not having had time to take a globular form, both from their sudden cooling and coagulation in the air, and from the smallness of their size.

I shall now proceed to speak of the second kind of scoria, I mean that for which Stromboli is celebrated, and of which its ejections principally consist. This species in its external appearance has no essential difference from the former; but its specific gravity is nearly three times as great, it is not at all fibrous, and only exhibits the slightest signs of a beginning vitrification. In other respects, like the greater part of scoriae, it is not only rough, scattered over with tumours and irregular figures, and every where scorified; but it is full of vacuities of round, oblong, and other forms. The largest of these are about half an inch in length, and the smallest almost invisible. They extend
through

through every part of the scoria quite to the innermost substance, even in the largest pieces; and in the centre of some they are found more numerous and large. Hence it appears that a universal effervescence of the elastic fluids must have prevailed in the substance of these scorice while they were in a fluid state. The internal surface of each of these cavities is, as it were, coated with a dull dark-red varnish, while the rest of the scoria is black. To discover the visible characteristics of this scoria, it must be examined with a lens in the recent fractures: we then perceive that the grain is not very fine, without brilliancy, and of a uniform texture. Its hardness is moderate, its fracture irregular, it gives some sparks with steel, emits a weak earthy odour, and attracts the magnetic needle at the distance of half a line. These exterior marks afford ground to believe that this scoria has for its base the horn-stone; and its component principles confirm the supposition beyond contradiction.

This base however, is not homogeneous, since it contains felspars and shoerls. On examining it with attention, we perceive that it is interspersed with a great number of small white spots, which form a remarkable contrast with the black ground on which they appear. By having recourse to the aid of the lens, we discover that these spots are scales of felspar. As they are quite flat, wherever they are viewed in the fracture, they appear about the thickness of a line, but longer when seen on a flat surface.

The number of the shoerls contained in this scoria is very considerably less than that of the felspars, but they are much larger. They are of a black colour, and in figure prisms, the length of many of which is five lines, and the breadth two. It is, however, very difficult to extract entire prisms from the scoria, on account of the tenacity with which they adhere to it.

They may be obtained much more easily in certain low bottoms near the crater, where they may be found separated from the scoria, the small fragments of which are there accumulated in great quantities. Detached shoerls may there be found little altered by the atmosphere and elements; many of them indeed fractured and mutilated, but some few entire, and still preserving their prismatic figure, which is octohedrous, and terminated by two pyramids. They will scarcely cut glass, and consequently cannot be very hard. Their appearance is vitreous, and they seem as uninjured as when they were in the rock, their primitive matrix.

Besides the felspars and shoerls, these scorice contain various other small stones, which I at first doubted whether I should consider as another species of shoerls, or as what have been called volcanic chrysolites. They have the transparency of glass, and are of beautiful colours. Some are of a fine grass green, others of a deeper emerald green, and others of a mixture of green and yellow. Some of these qualities, which are common to chrysolites, and to certain species of shoerls, caused me to doubt, when I first examined them, whether I should class them with the former or the latter. But besides that I could not discover that they had any regular figure, the ease with which they were fused with the blow-pipe, determined me rather to consider them as shoerls.

From the observations that have already been made, it seems clear that these two species of scorice are of the nature of porphyry, as they are composed of a horn-stone in which felspars and shoerls are incorporated †.

* The original has "two dihedrous pyramids" (*due piramidi diedre*). But (as the German translator has rightly remarked) who has ever seen a pyramid with only two sides? I have, therefore, with him, omitted the word, which must have been inserted by some mistake.—T.

† It appears to be proved by the most recent discoveries of chemical analysis, that the base of the greater part of porphyries is shoerl in the mass, or horn-stone, or trapp; though it cannot be denied that this base is likewise frequently siliceous. Many of the lavas, therefore, of the Phlegrean Fields, which I have described in the first volume, may be referred to this kind of stone.

But before I dismiss this second kind of scoria, I must make one more observation on it. Some pieces of this scoria lay near the apertures, from which the streams of smoke I have already mentioned arose to the west of the volcano. I collected some of these, which had almost stopped up one of the orifices through which the fumes issued, and which consequently was strongly acted on by them. These pieces had undergone changes similar to those of the lavas of Solfatara. They had lost their black colour, were covered with light-yellowish crust, and were become so soft that they might be cut with a knife. The shoerls, however, in the part where this alteration had taken place, had undergone no change. But the sulphureous acid which had acted on this scoria, besides having in part decomposed it, had likewise produced in its cavities small aggregates of sulphate of alumine (alum), and sulphate of lime (gypsum). This observation I have had an opportunity of making, not on volcanic products long since decomposed, which decomposition there is every reason to believe must have been effected by the means of sulphureous acids; but, instructed by nature herself, on a product actually undergoing decomposition, and thus presenting an incontestable proof of the power of these acids to decompose such substances.

I have denominated the principal matters ejected by Stromboli, and on which I have hitherto treated, scorix; though, according to the judicious and just remark of M. Dolomieu, these differ from lavas only in having undergone greater alteration within the volcano, having been more inflated, and acquired a surface more rugged, and of a more irregular form; and such precisely is the appearance of the stones thrown out by Stromboli. I am aware, however, that the difference of these circumstances is not intrinsic and essential; and that, therefore, what I have termed scorix may be likewise called lava, only more changed in the volcano, since it is in substance the same matter melted by the fire, and differently modified by the elastic gases. I think, notwithstanding, that I have expressed myself with sufficient propriety, when, in the last chapter, I said that the lava swelled, sunk, burst, and was thrown up into the air, though I have afterwards called the congealed pieces of it scorix, since they possess the characteristics of that substance.

With respect to the matters that ferment and boil up in the crater of Stromboli, I shall here make a remark which may deserve consideration. This volcano, besides the singularity of having been in a continual state of eruption from time immemorial, has also this other, that the substances it ejects are more repeatedly acted on by the fires of its crater than in other volcanos. The latter being situated at the summit of steep mountains, having once thrown out their ignited stones beyond the edges of the fiery gulf, never receive them again, as they pour headlong down their sides. But the crater of Stromboli is situated half-way up the mountain, and surrounded, except only on the side which faces the north, by steep precipices; so that, besides the scorix which are thrown up perpendicularly, and fall again immediately into it, great quantities which are thrown beyond its edges roll down the declivities, and return again into it. When we consider, therefore, how many ages this recurrence of burning matters into the volcano has continued, we might expect that from the continued action of the fire they must approach very near to a vitreous nature, or rather be changed into perfect glass; yet this is by no means the fact. I caused a quantity of scorix to be dug up from the depth of eight feet, at no great distance from the mouth of the crater, and found it exactly resemble that on the surface, though it must have been ejected so long a time before. It is likewise to be remarked that the shoerls in the recent scorix are as entire, and as completely crystallized, as those in the most ancient.

These observations are a certain, and, in my opinion, elegant proof that the activity of the fire has never been, in former ages, either greater or less than it is at present.

Not less, since then the fusion of the matters in the crater would not have taken place, and consequently there would have been no eruptions; nor greater, (at least not in any considerable degree,) otherwise the scorix would have been completely vitrified, and the shoerls fused, as we find them by our common fires when intense.

Hence likewise appears what little foundation there is for the opinion of some naturalists, who have supposed that volcanic glasses owe their origin to the refusion of lavas; since, as we have seen, no true glass has ever been thrown out by Stromboli, notwithstanding the multiplied refusions of the ejected scorix, or scoriaceous lavas, if any should choose to call them by that name*.

But it is time to consider the third species of scoria. This properly belongs to the ancient volcano, and is found, on removing the sand, at a small depth, on the east side of the island, a little above the foot of the mountain. It is disposed in strata forming one body with the subjacent lavas, which at some distant period flowed from the summit of Stromboli into the sea. The inhabitants make great use of this scoria to build their houses, as it is very firm and very light, which lightness arises from the small quantity of matter it contains in proportion to its bulk, and its great porousness. As the partitions which separate the cells or pores are very thin, it is difficult properly to examine this scoria, which bears the marks of the highest antiquity. After as attentive an examination as I could bestow, I discovered in it black shoerls and white felspars. The body of its substance does not differ, that I could perceive, from that of the other two kinds.

Having thus described the three kinds of scorix of Stromboli, though I do not mean to say that other enquirers may not discover more species, I shall next proceed to enumerate and describe the lavas, which, for the sake of order, I shall divide into porous and solid, beginning with the former.

I. This lava forms an ascent of some hundred paces, to the west of the island. The eye does not hesitate a moment to recognize it as a product not at all differing in substance from the second species of scorix. It has the same ground, consistence, and colour; and contains the same felspars and shoerls, both of which are in like manner un-mutilated, and have the same crystallization. It likewise gives sparks, in the same manner, with steel. But the size and number of its cavities or pores is less, the solid parts are more smooth, nor have they in their grain that irregularity which appears to be inseparable from scorix. We might therefore suppose that it is the produce of the present volcano; nor should I object to that supposition, were the course of the lava on that side; but I find it is directed towards the summit of the mountain, where there is every reason to believe the greater volcano anciently was situated. I am therefore of opinion that this was its source.

II. This lava is less porous. The grain has somewhat of a siliceous appearance. It is smooth to the touch, and gives sparks plentifully with steel. It contains but few felspar scales, but innumerable shoerls. It lies on the south side of the mountain, in large single stones.

III. The difference between this lava and that of No. II. is but small, and consists in its greater porosity, and a feeble argillaceous odour. This lava is found scattered over the island. The petrosilex is the base of both these lavas.

* With respect to the matters ejected by Stromboli which scorify and do not vitrify, it may perhaps be said that this does not happen, because they have not caloric enough to become glass, but from the quality of these matters, which, originating from the horn-stone, only produce scorification, and that from the quantity of iron they contain.

This reasoning may at first view appear plausible, but is sufficiently refuted by the easy vitrification of these scorix in the furnace, as we shall see presently.

I shall now speak of the solid lava, which I so term; not because they are without pores, but because their pores are so minute that they escape the eye.

I. This lava, notwithstanding its solidity, is friable, and gives sparks feebly with steel. It abounds in felspars, and still more in shoerls. It is of a dark-grey colour; its base is horn-stone, and consequently it emits an earthy odour.

II. This second species of solid lava is still more friable than the former, and it has a considerable argillaceous odour. It contains no shoerls, but so abounds in felspars that they occupy more than one third of its mass, and are easily distinguished, as they are of a shining whiteness on a brown ground. Their lamellæ are distributed equally through its whole texture. I collected both this lava, and that of No. 1. from several currents of it on the south-east side of Stromboli.

III. I am in doubt whether I ought to call this stone a lava, as it is a porphyry of a beautiful dark-red colour, which changes to a black as soon as it is exposed to the activity of the furnace. The place, likewise, in which I found it, contributes to increase my doubts. This was a hill of tufa forming a large inclined stratum, on the south-east side of the island; within which it is found in large masses. I was led, therefore, to conjecture, that both this porphyry and the tufa might have been thrown out by the volcano without having been exposed to the violence of the fire. I am still, however, unable to form any determinate conclusion, since I am in possession of several other specimens of porphyry, which bear indubitable marks of having been fused, though they still retain a beautiful red colour, as will be seen when I come to treat of the island of Lipari. However this may be, this stone has for its base the petroflex, is spotted with white felspars, and takes a fine and brilliant polish.

IV. This lava which is found in a long-continued current, on the south-west side of Stromboli, contains, as usual, scattered felspars. It is of a black colour, of the horn-stone base, and emits a strong earthy odour. It is accompanied with various greenish and black shoerls. A number of curling veins and waves appear in it, which probably were produced when it flowed from the mountain. Though it is solid, it has in it several small cavities, all of which are long ellipses, all placed in the direction of the current from which they certainly derive their figure.

These are the scorix and lavas found at Stromboli, omitting a few varieties, which would only swell the work, without adding to its utility.

According to the division I have made, after the lavas, I should proceed to speak of the tufas, as I have already given the reader to understand they are not wanting in some parts of the island. But I think I fully describe these, when I say that they are an argillaceous earth, pulverizable, extremely bibacious, of a grey colour, containing fragments of felspar and shoerl, and which, in the furnace, hardens without melting. Such, at least, are the characters of the tufas which I observed at Stromboli.

I now proceed to the fourth kind of the volcanic productions of this island, the pumices. These are found on the east side of the mountain, at about one-third of its height, on the sides of some pathways which cross several vineyards, and in the furrows made by the descent of the waters. They are not found in masses, and still less in currents, but in small pieces, which are not numerous, and it is easy to perceive that they have been brought above ground by the labours of men, or by the action of the rains; and, following the traces they afford, we find them buried under the sand, at the depth of several feet. Here they are but thinly scattered, and are in the same state as when thrown out of the volcano. I cannot pretend to ascertain from what crater they originated, whether the ancient, the present, or some other, the remembrance and traces of which are lost; as nothing affords any light to direct my researches relative to this obscure question.

question. I found them in no other part of the island. As they do not differ from the more common and known species, it would be superfluous to give a long description of them. I shall only say that their base is petrosiliceous, with a mixture, as usual, of felspars.

Stromboli has, therefore, at some other period thrown out pumices, though it does not eject them at present. A similar change, though on a larger scale, we find likewise take place in Vesuvius.

The different kinds of scorize and lavas being exposed to the fire of the furnace in separate crucibles, the base, whether of petrosilex or horn-stone, changes into a shining, ebullient, but hard glass, with a fusion of the shoerls, but not of the felspars. From the pumice was obtained a glass lighter from the multitude of its pores, of a grey colour, and dully transparent.

It now remains to speak of the iron, the fifth and last of the volcanic productions which I found on this island. This is specular. I am not ignorant that this species of metal has been likewise observed in other volcanos; but it gave me pleasure that I was the first who had discovered it in the Lipari islands; and this pleasure was considerably increased, when I perceived that the crystallizations of this iron were much larger than those which had been observed by others; and, consequently, much better adapted to shew and explain their formation. It is found on the southern side of the island, at the distance of somewhat more than a mile from the inhabited part, in a rock of lava, which descends almost perpendicularly into the sea, from the height of about a hundred and fifty paces. Some natives of Stromboli having shewn me a small specimen of this iron, without knowing what it was, as one of the rarities of their country, I was very desirous to obtain some others, but such as might shew the iron still adhering to the matrix, as these were detached pieces, found on the beach under the rock. But to procure new pieces of this production, neither entreaties nor any common offers of reward availed; and, to say the truth, so great was the labour and danger of obtaining them, that they never could be sufficiently paid for. To get at these stones, as they call them, it was necessary to go by a very dangerous way, scarcely passable by the wild goat, much less by men, and therefore called very properly *il malo passo*, the bad or dangerous road. But, to reach the precise spot where the iron is found, still greater danger must be encountered, as the rock, besides its extreme steepness, is partly fallen down, and the rest on the point of falling; and it is very difficult to find firm footing on it, without slipping, and falling headlong into the sea. The desire of gain, however, added to the habit in which these peasants are of passing cliffs and fearful precipices, induced two of them to undertake this enterprize, which they successfully executed, bringing back with them some very beautiful pieces of this iron which they had separated from the lava with a pick-axe. From them I learned, that the rock has clefts in many places, and, that within those clefts the iron is found.

This metal is crystallized in laminæ, vertical to the mother rock, in which they are so firmly infixed, that they must be broken to obtain them detached. The two faces of every lamina or plate are parallel to each other, or nearly so. In general, the plates, at a first view, appear oval; but, when examined with more attention, they are found to be polygons. The figure of these polygons is extremely diversified. Sometimes they are triangles, terminating, in the upper part, in an obtuse angle; and sometimes in a right, or acute angle, though this but rarely. Some of those plates have six, seven, eight, and sometimes more, sides; nor is there less variety in the length of the sides, or the measure of the contained angles. The sides are frequently cut by plates, which are triangular, quadrangular, rhomboidal, or of other polygonal figures. Nature, therefore, in the formation

formation of this metal, appears not to have prescribed to herself any single form of crystallization; or, at least, if she has, it is not easy to discover the simple primitive figure from which has arisen so great a variety.

The plates or faces have such a brilliancy and polish, that if the finest steel be not inferior, it certainly is not superior to them in beauty. They reflect the light equally with the most perfect mirrors. The largest exceed four inches in length, and three and a half in breadth; but there are innumerable others which are smaller; and only one inch, or the half, the third, or the quarter, of an inch, until they become so minute as to be only visible by the microscope; but they are always crystallized in one of the figures already mentioned. A single lamina is never seen, but they are always in groups, which groups are sometimes twenty or more inches in circuit. The number of them, therefore, is very great.

I must not here omit to mention a peculiar circumstance, which usually attends these crystallizations. The circumference of these thick metallic groups is formed of laminæ so minute, that a strong lens is necessary to discern them; but they become gradually larger as they approach the centre, where they are largest of all. There are also places in these groups where Nature seems rather to have sketched than completed her work. We find there groups or small masses of iron which present only the first principle of crystallization. In others we do not find even this sketch but only a crust attached to the matrix. There are also places in which a number of small tumours arise, that viewed with the naked eye appear to be without form, but when examined with the lens, are discovered to consist of a multitude of small laminæ irregularly conglutinated. In the same manner, some crusts are formed, in some places three lines in thickness, which, both internally and on the superficies, are found to be composed of an aggregate of laminæ thrown irregularly on each other.

In reference to some observations I shall hereafter have to make, I must mention that some of these aggregates of laminæ are either entirely covered with a coating of sulphate of lime, so that it must be taken off to get at them, or at least only the upper part of them rises above it. This coating is of a very white colour, and so strongly attached to the iron, that it appears like wax that has been poured over it and hardened.

The colour of these laminæ, in general, greatly resembles that of the finest and most brilliant steel; except some which have a violent tincture. They are as resplendent in the fractures as on the faces. Notwithstanding their great hardness, they are nearly as brittle as glass.

On carefully examining these laminæ, a phenomenon presented itself, which increased my attention. This was some scales parallel to each other, which arose from the faces of these crystals, and induced me to suspect that their composition might be the result of a number of small leaves united and conglutinated together. An inspection of the larger laminæ convinced me that this conjecture was well founded; for, on breaking them crosswise, I frequently found in the fractures very small leaves. There are also some which very evidently shew them, and in great numbers, on their faces. A leaf, for example, may occupy a sixth part of the face and their end. Further on, under that, another appears, which extends another sixth, and then terminates like the former. Still farther, under the second leaf, appears a third, which extends only a small space: and in like manner others: so that the lamina will be the less, the smaller the number of the leaves of which it is composed. I shall here avail myself of a comparison, which, though not very scientific, will aptly explain what I mean. When a number of leaves of paper are, first, rolled up, and afterwards spread out on a flat surface, it will happen, on their unrolling, that each will separate a little from the next, so that

they may all be numbered; and it will be evident that the first, which is above all the rest, renders the heap larger, and that the leaves being successively taken away, the heap will be diminished, until it will at length only consist of the single last leaf.

The laminæ, however, are not all composed in this manner. In some, the component scales are conglutinated in such a manner that they do not appear, and the fracture presents a continued surface. Yet there are but few laminæ so smooth on both their faces as not to shew the presence of some leaf. More than once I have found on one lamina others attached which shewed they were of later formation.

These facts, when compared, must remove every doubt with respect to the nature of the formation of these noble crystals, as it is manifest they are composed of a greater or less number of small plates, which, placed upon, and adhering to, each other, form the larger laminæ.

Among all the volcanic productions which I met with and collected in my travels, there is not one which gives sparks so plentifully with steel, or influences the magnetic needle at so great a distance, as this of which I now treat.

Almost every lamina, part, or fragment of this production possesses polarity, attracting the magnetic needle at one end, and repelling it at the other; which attraction and repulsion are equal in force. The same powers of attracting and repelling are equally found in the crusts of iron apparently not crystallized, and in their parts.

Notwithstanding, however, its power to move the magnetic needle, it is scarcely at all acted on by the magnet, at least, not unless it be reduced to very small particles.

When approached to the Leyden phial, it freely conducts the electric shock.

The furnace has no other effect on it than to deprive the laminæ of their brilliancy, and diminish, in a small degree, its magnetic virtue, which is not destroyed even by the fusion of the laminæ; to obtain which the blowing pipe is not sufficient; but oxygenous gas (dephlogisticated air) must be applied for about two minutes, as one will not be long enough. The little ball into which a small lamina of specular iron is converted, loses on its surface all brilliancy, and acquires the colour of lead exposed to the air. Internally, however, it still retains some resplendence; but the friability of its parts is increased, and it gives but few sparks with steel. The same change takes place in this metal which is so frequently observable in other bodies after having been in a state of fusion: it is interspersed with small air-bubbles, and rendered, in a manner, spongy.

Such are the principal properties of the specular iron which I discovered at Stromboli. But it is of importance to know, of what nature is its matrix. This is a lava which does not essentially differ from those lavas of this volcanic country which are of the horn-stone base, except that it has undergone great changes. It is so friable, that it may be scratched with the nail. Instead of being black, or dark brown, it is of a cinereous, and, in some places, of a reddish colour. It is extremely porous, and therefore light; and its grain rough and dry, not unlike that of some sand-stones. Its odour is argillaceous, and it adheres strongly to the tongue, like a burnt bone. When immersed in water, it imbibes it with a hissing noise, and saturates itself with it.

Besides that it gives no sparks whatever with steel, this lava has not the smallest effect on the magnetic needle, except when some small particle of specular iron still remains within it; for though the latter principally covers the external surface of the lava, a number of microscopic laminæ glitter, here and there, in its internal pores.

The small felspar crystals in this changed lava are entire, but their natural brilliancy is diminished, and they are cracked. It is necessary to look with attention to distinguish them from the substance of the lava, as their colour is the same; but they are much more easily discernable when the lava has been exposed to the furnace, since they

have then acquired a greater degree of whiteness, and are seen through a thin blackish crust of enamel, into which the surface of the lava is changed. This, however, in a few seconds, is entirely freed from the oxygenous gas, and a homogeneous but ebullient enamel produced.

The great analogy between the alteration undergone by this lava and the changes produced in many others by the action of sulphureous acids, sufficiently shews that it proceeds from the same cause. This is likewise evidently confirmed, by the thin crusts of sulphate of lime with which it is coated, and which have been generated by the sulphureous acids, combined with the small portion of lime contained within the hornstone.

It will here not be improper to give a concise account of some observations of a similar kind with those I have made, that by comparing we may be enabled to deduce such conclusions as may elucidate the subject.

The first author, who, to my knowledge, has spoken of crystallized iron adhering to volcanic matters, is M. Faujas in his *Mineralogie des Vulcains*. He tells us that he found at Volvic, in Auvergne*, a homogeneous and heavy lava, from the surface and fissures of which projected a great number of small thin plates of iron, which had the lustre of the finest polished steel. Though he does not give their size, there is reason to believe they must have been almost microscopic; since he says a lens of considerable magnifying power was necessary to discover that some of these plates were segments of hexagonal prisms, and that others consisted of two hexagonal pyramids joined at the base. They were attracted by the magnet. The lava to which they adhered, according to him, was basaltic, but greatly altered, having become white, cracked, friable and softened.

M. De Larbre, physician at Riom, examined with great care, both the iron of Volvic above mentioned, and that of the Puy de Dome and Mont d'Or in the same province*. The crystals of the latter iron are sections of octahedrons similar to those of alum, and sometimes perfect octahedrons. It is at Mont d'Or that the crystallizations, or plates, of specular iron are most beautiful and distinct. The largest are about an inch and a half in breadth, somewhat more in length, and about a line and a half, or at most two lines in thickness. The faces of the plates, when viewed with the lens, discover streaks and diminutions which prove the accumulation of a number of small laminae.

The specular iron of the three abovementioned places in Auvergne possesses a magnetic quality, and many pieces of it attract the magnetic needle on one side, and repel it on the other.

M. De Larbre remarks that the specular crystallized irons of Mont d'Or, the Puy de Dome, and Volvic, have the same matrix, that is, a cellular and pumiceous lava; and that this lava has been more or less changed by the action of acids.

Lastly, a third specimen of the crystals of specular iron has been described by the commendator Dolomieu, which was found by him on some solid lavas, at Jaci Reale, and on different scorite, which had been changed and softened by acid sulphureous vapours, in the crater of Monte Rosso. Those found at the former place were thin shining plates, of a regular hexagonal figure, hard, slightly attracted by the magnet, and the largest not exceeding a line and a half. Those of Monte Rosso consisted only of small, thin, irregular scales.

* Now the department of Velay. T.

† See his Dissertation in the *Journal de Physique* par l'Abbé Rozier, l'an 1786.

When I compare these observations on specular iron with my own, I find that they greatly resemble them. The iron described by these authors is, like mine, crystallized; but the crystallization is different, and the laminae of the iron of Stromboli are larger than those of that of Auvergne and Etna. The beautiful lustre, like that of steel, and the magnetic virtue, are the same in both. The formation of the crystals of Auvergne is observed to arise from the apposition of small scales, as I observed in mine, only that, in the latter, it is more distinctly seen. Lastly, the lavas in which this specular iron is found excepting those of Jaci Reale, have all undergone a change.

This identity in the effects naturally induces to conclude an identity of cause. The three naturalists above cited are of opinion, that the formation of these martial crystals is to be ascribed to the volcanic fire; by the action of which the metal was separated from the lava of which it made a part, and sublimed; and that afterwards, falling on the surface, and into the clefts, it there attached and collected, taking a regular form. This explanation is, certainly, not only the most natural, but is confirmed by facts; since iron, in crucibles, using certain precautions, crystallizes in a similar manner, as has been observed by MM. Grignon, Faujas, and Buffon. I am therefore of the same opinion relative to the specular iron of Stromboli, that is, that the vehement heat of the fire deprived the lavas of this metal, by subliming it, which afterwards attached to their surface, producing laminated crystals, more or less large, and more or less numerous, with those varieties which usually accompany crystallizations. In fact, while almost all the other lavas of Stromboli move the magnetic needle, those which have crystallizations of iron on their surface, have not the least effect on it; no doubt because they are in a great measure deprived of that metal. But as, in general, the fire has acted on the other lavas, in the same manner as on those which exhibit the specular iron, and as, besides, the specimens of the latter are not numerous in volcanized countries, (since, excepting the places above mentioned, and some of the Phlegrean-fields*, I know none where this crystallized iron is found,) it seems not to be doubted but some other circumstance, besides the fire, must concur to its formation; which perhaps may be the union of the iron with the muriate of ammoniac, as it is well known that by such a union that metal is sublimed and passes into the nature of specular iron. . .

We have seen that the specular iron of Stromboli is, in many places, covered with sulphate of lime; and since this sulphate derives its formation from the action of the sulphureous acids, they must have acted likewise on the metal, the crystallization of which is anterior in its origin to this neutral salt, which closely invests and covers it. But though these acids are sufficiently powerful to attack and decompose the most solid and hard lavas, they have not been able to make any impression on the specular crystals, which have likewise resisted all the shocks of other destructive causes, among which the æriform fluids floating in the atmosphere are no small part, and still retain that brilliant lustre which they received at first, notwithstanding the antiquity of their production, which is probably the same with that of Stromboli itself, of which the annals of time afford no memory. For, in fact, these crystallizations being found adhering to a rock formed of strata of lava, which serves as a foundation to almost the whole superstructure of the mountain, we cannot recur to any times known to history, but must go back to that most remote period in which the island was formed by subterraneous conflagrations.

We have now finished the description of the volcanic products of Stromboli; I mean the sand, scorix, lavas, tufas, pumices, and specular iron. Omitting this metal, the pu-

mices, and the tufa, three productions which occupy only a small corner of Stromboli, this island may be said to be formed, as far at least as externally appears, of scoriæ and lavas; and since these scoriæ and lavas have been shewn to derive their origin from porphyry rocks, partly with the horn-stone base, and partly with that of the petrosilex, it must be concluded, that the material origin and increase of Stromboli is to be attributed to porphyry, which, melted by subterranean conflagrations, and rarified by elastic gaseous substances, arose from the bottom of the sea, and, extending itself on the sides, in lavas and scoriæ, has formed an island of its present size. These porphyry rocks likewise still furnish matter for the present eruptions.

Before I conclude this chapter, I must not omit two enquiries which I consider as of no little importance. In my researches relative to volcanos, I have proposed as a rule, to subject the volcanized bodies to the action of the furnace, in order to compare the activity and manner of action of the subterranean fires with that of our common fire; and I have found this practice, and expect still to find it, not a little instructive. But with respect to the Eolian isles, which I have studied with the greatest attention, I have judged it proper to make other experiments of the following kind.

Having ascertained, by various observations, the different kinds of primitive rocks, which by their fusion have contributed to the formation of each of these islands; I resolved to subject to the furnace, rocks of a similar nature, but brought from countries not volcanic, remarking in what manner they are affected by our common fire, and thus make a comparison of another kind, which must be of equal utility with the former.

To this enquiry, which has perhaps been first made by myself, I shall add another, relative to the accounts left us by the ancients concerning the conflagrations of Stromboli, which I shall state and consider. I shall proceed in the same manner with respect to the other islands, as an examination of these accounts will enable us to compare the present state of these countries produced by subterraneous conflagrations with that of former times.

With respect to the first object of research, as the principal materials of Stromboli derive their origin from rocks of porphyry, I shall briefly relate the results of experiments made on different kinds of this stone, in its natural state, exposed in the usual manner to the furnace; and I request my courteous readers to endure the fatigue of reading these experiments, since I endured the fatigue of making them.

I. This porphyry is Egyptian. Its colour is a dark red, its base compact; and its recent fractures fine and earthy. It gives sparks plentifully with steel, and breaks into irregular peices. The base includes a few black, shining, linear and opake, shorls; with abundance of felspars of two kinds; the one quadrangular, of a pale red colour, and almost opake; the other likewise quadrangular, but transparent and brilliant. It is well known that this porphyry takes a fine polish, which renders it very beautiful to the eye.

After remaining twenty-four hours in the furnace, it is perfectly fused; when it is changed into a black enamel, minutely spotted with ash-grey points, which are felspars. These, therefore, continue entire. This enamel abounds in pores, gives fire with steel, but less than the porphyry; has a lively lustre, and is transparent in the angles.

If this stone remains in the furnace eight-and-forty hours successively, it becomes a compact enamel, uniformly black, from the complete fusion of the felspars, which then form with the base one homogeneous whole.

It has been the opinion of many celebrated naturalists, that the base of the Egyptian porphyry is a jasper; but the easy fusion of it in the glass-furnace convinces me of the contrary; and I find one of the most eminent of our modern lithologists agrees with me

This stone is changed by the furnace into a black enamel, moderately inflated, and hard. Its felspars, however, remain entire, only with the change of their red colour into a white.

X. The horn-stone of the present porphyry is laminated, of a smooth surface, easily cut with the knife, and of a reddish-green colour. Its felspars are rhomboidal; and some are four lines and a half in length and three in thickness.

In the furnace they remain unaltered; but the ground of the porphyry is changed into a black and hard scoria, full of little bubbles.

I shall omit the description of many other porphyries, the base of which was in like manner horn-stone, and on which I made the same experiments, since the results were essentially the same with those already stated. I shall only mention that these different species of porphyry, some of which had the petrosilex, and others the horn-stone for their base, were brought from those parts of Hungary and Germany, where, according to the observations of scientific travellers, no traces whatever of volcanization are discoverable.

If we now compare the effects of the volcanic fires and our common fire on these various kinds of porphyries, we shall find that the principal difference is, that the furnace vitrifies them, destroying their original structure, whereas the fires of Stromboli seldom change their natural lineaments. In both cases we find the felspars, for the most part, remain infusible; but what appears of most importance to the present object of our research is, that the stones with a petrosiliceous base, as well as those with that of horn-stone, may be fused is a strong heat (such as that of the glass furnace) and without its being necessary to have recourse to the most vehement that can be procured.

From these experiments we learn, therefore, in what manner the subterranean fire of Stromboli, even though we should not consider it as extraordinarily active, may have been able to melt, and may still continue to liquify, the rocks of porphyry which have existed, and still exist, in the abysses of that mountain. The facility, likewise, with which its lavas may be re-melted in a glass furnace, is a strong confirmation of the hypothesis.

With respect to the time when this volcano began to exert its activity, and to melt these rocks, we are profoundly ignorant, this being an epocha anterior to all history. We must be contented with the imperfect accounts the ancients have left us of the conflagrations of Stromboli, which did not burst forth in their time, but ages before. Of these accounts I shall proceed to give a concise view, this being the second enquiry it was proposed to make, and it will necessarily be brief, as the notices left us on this subject by the ancients are extremely few.

Eustatius, Solinus, and Pliny, inform us that the flames of Stromboli are less powerful than those of the other islands of Lipari, but that they exceed them in clearness and splendour. These writers, however, were only the copiers of Strabo, or perhaps some abridgment of him, in which he is copied incorrectly. We shall therefore have recourse to that celebrated Grecian geographer himself; who, after having mentioned Lipari and Vulcano, and informed us that Stromboli likewise burns, tells us that the last island compared to the others, is inferior to them in the violent eruption of its flames, but that it exceeds them in their brightness*.

It is evident, that by "the others," Strabo means Vulcano, which was the only one of the Eolian isles, besides Stromboli, in a state of conflagration in his time. When I compare Stromboli with Vulcano, I perceive that, even now, there is this difference

* Ἐστὶ δὲ (Στρογγύλη) καὶ αὐτὴ διάπυρος, βίαι μὲν φλογὸς λεπτομένη, τῷ δὲ φέγῃσι πλεονατῶσα. Lib. vi.

between the two islands, that the flames of the former are much more resplendent and lively than those of the latter, as will appear when we come to treat of Vulcano; but I cannot say that those of Stromboli are less violent, as the contrary is certainly the fact. We must, however, conclude, that, in those ages, the eruptions of Vulcano were very strong and frequent, which agrees with the testimony of Diodorus, and that of Agathocles as cited by the Scholiast on Apollonius; the former of whom asserts, that, in his time, Vulcano and Stromboli vomited great quantities of sand and burning stones*, and the latter, that these two islands threw out fire, both by day and night†.

There is another circumstance mentioned by the Sicilian historian which deserves notice. This is, that a wind issues from both these islands with a great noise. This, in some measure, agrees with the observations I made at Stromboli; and is still more applicable to the other island, as will be seen when I come to give an account of Vulcano.

Philip Cluverius, in his *Sicilia Antiqua*, speaking of Stromboli, tells us that its crater is situated at the summit of a mountain, from which it pours forth, both by day and by night, with a horrible noise, bright flames, and great quantities of pumice‡. In one of the plates prefixed to his work, this island is represented with the smoke rising from the summit of the mountain.

Nearly one hundred and seventy-three years have now elapsed since this author travelled in Sicily. Ought we then to conclude, that, at that time, the mouth of the volcano was situated at the summit of the mountain? Had the learned antiquary himself visited the island, I could not have objected to his evidence. But he not only does not say this, but the contrary may be inferred from his own words. Immediately after the passage I have already cited, he adds, "*sed perpetui ejus ignes eminus navigantibus, nocte tantum, conspiciuntur. Fumum eorum candidissimum ex Italiae pariter ac Siciliae littoribus conspexi.*" It is therefore evident that he saw this volcano only from a distance, and that, consequently, his assertion, that the fiery crater was situated at the summit, is not to be depended on. What he has said of the pumices then thrown out by it, he may have taken on the credit of some of the natives who gave him that information, and who confounded the scoriaceous lavas with pumices; or it may in fact be true, since under the scoriæ and lavas of Stromboli, scattered pumices are found, as I have observed above.

From the authorities above adduced it appears, therefore, that the most ancient accounts of the conflagrations of Stromboli, transmitted to us by history, are prior to the Christian era by about two hundred and ninety years, the date of the reign of Agathocles the celebrated tyrant of Syracuse. This volcano burned likewise in the times of Augustus and Tiberius, when Diodorus and Strabo flourished. But after this latter period, a long series of ages succeeds, during which, from want of documents, we are ignorant of the state of Stromboli, and it is not until the seventeenth century that we again know, with certainty, that it ejected fire; though it is not improbable that it continued to burn likewise during the times in which we find no mention of it in history: on which supposition, its uninterrupted conflagration, for so great a length of time, must indeed appear astonishing. Yet, though it should have ceased for several ages, we know, from

* Εἰ δὲ τῷ Στρομβόλῳ, καὶ τῇ Σίξῳ, μέχρι τῶ νῦν, ἐν τῶν χειμῶνων ἐκπύει πνεύματος μέγας, καὶ βρόμος, εξαίσιος. ἐκφυῖται δὲ καὶ αἶμος, καὶ λίθων διαπύρον πλῆθος, καθάπερ ἐστὶν ὁρᾶν καὶ περὶ τὴν Αἴτναν γινόμενον. Lib. v.

† Αἰνιγες (Σίξῳ καὶ Στρομβόλῳ) ἡμίρας καὶ νυκτὸς, πῦρ ἀφίεισιν.

‡ Strongule hodieque liquidissimam flammam, et pumices magna copia, ex vertice, ubi craterem habet, noctes atque dies, cum fremitu horrendo, eructat.

various public testimonies, that its continued eruptions cannot have lasted less than two hundred years.

Here our curiosity may naturally be excited by the question, What are the substances which, without diminution, have nourished, during such a number of years, and still continue to feed these fires? I do not perceive that there is any reason to suppose them different from those which furnish fuel to the intermitting volcanos, except that their source appears to be inexhaustible. It is believed, with much reason, that sulphur produces and continues volcanos; and wherever these mountains burn, we have indisputable proofs of its presence. Still more effectually to explain these conflagrations, petroleum has likewise been called in aid; and, in fact, it has sometimes been found to issue in the neighbourhood of a volcano, of which Vesuvius is an example*. The clouds of thick black smoke, which frequently rise into the air from the mouths of volcanos, and the unctuousity and footiness, which are said to be found in the recent scoriae, seem likewise to be evident indications of some bituminous sublimate.

That Stromboli contains within its deep gulphs and recesses an immense mine of burning sulphur, we can entertain little doubt, when we consider the streams of smoke, of extraordinary whiteness (a colour which constantly accompanies sulphureous fumes) that rise on the west side of the island, and the smell of sulphur, not only perceptible from them, but from the large cloud of smoke which overhangs the summit of the mountain. The small pieces of that mineral produced near the apertures whence those fumes arise, are likewise another proof. But of the presence of petroleum, and its effects, I have never perceived the least sign. Besides that no vein of it is found in the island, nor any ever seen swimming on the sea which surrounds Stromboli, as I was assured by the general testimony of the inhabitants, the smell of this bitumen is no where sensible, though naturally it is very acute. I have frequently visited the sources of petroleum, at Monte Zibio, in the territory of Modena, and I could always perceive the smell of their penetrating vapours, at the distance of several hundred paces before I reached them. I therefore conclude, that these vapours must have been much more sensible at Stromboli, as they would have been much more active, had petroleum actually burned within its gulph. I have likewise examined, with the greatest attention, the scoriae thrown out by the volcano, and while they were very hot; but I never could perceive that they emitted, either from their surface, or within their pores and cavities, the least smell of that bituminous substance, or that they any where exhibited any unctuous humidity. As I knew that the smoke which exhales from burning petroleum is of a blackish hue, I suspected that the thick and dark column of smoke, which arose to the east of the volcano, might be a sign of its presence; but, on a nearer approach, I perceived that its darkness proceeded from aqueous vapours which were mixed with it, and which, by my continuing a short time in it, rendered my clothes damp and wet.

Shall we then affirm that the fires of Stromboli receive no kind of aliment from this bitumen? Notwithstanding the observations I have stated, I would not venture confidently to deduce such a conclusion; since it is possible that the petroleum may burn under the mountain, at so great a depth, that its vapours may not reach to the top, but may be dispersed and consumed by the fire, and the immense mass of liquified matter, which probably extends from the crater to the lowest roots of the island.

But though we should not admit the existence of this oil within the deep recesses of the mountain, I do not perceive but the sulphur alone may be sufficient for the nourish-

* Serao, *Istoria dell' Incendio del Vesuvio, del 1737.* Bottis, *Istoria di varj Incendj del Monte Vesuvio.*

ment of the volcano, when its flame is animated by oxygenous gas, the presence of which, in volcanic abysses, seems undeniable, from the substances they contain proper to generate it, when acted on by the fire.* The long duration, without intermission, therefore, of these conflagrations, may be very sufficiently explained by the immense quantities of sulphur, or, to speak more properly, sulphures of iron which we must necessarily suppose contained in the bowels of the mountain; a supposition rendered the more probable by the prodigious subterranean accumulations of this mineral which have been discovered in various parts of the globe.

CHAP. XII.—BASILUZZO, BOTTERO, LISCA-BIANCA, DATTOLO, PANARIA, SALINE.

Basiluzzo, in part, formed of granitous lavas.—Its sterility.—Uninhabited.—Bottero and Lisca-Bianca, two rocks, in many places decomposed by acid vapours.—Sulphurated hydrogenous gas (hepatic gas) issues from the sea near these rocks, which still probably, cover the remains of fire.—Dattolo formed of lavas in a great measure decomposed.—Panaria formed of granitous lavas.—This island fertile and inhabited.—Probability that this group of rocks and small islands are the remains of a vast ancient volcano.—Saline formed by an accumulation of currents of lavas.—Course of these currents to the south of the island.—Their various stratification and nature.—Some remains of craters on the summit of this island.—Result of experiments in which natural granites were exposed to the furnace, to compare them with those which, by the action of subterranean fires, have contributed to the formation of Basiluzzo and Panaria.—An extremely strong fire required for their fusion.—A fire equally strong required for the re-fusion of these granitous lavas.—Consequence which appears naturally to follow from the great violence of the volcanic fires required to produce the granitous lavas of these two islands.

THOUGH this chapter will contain an account of several islands, it will be very short; since several of them are rather rocks than islands, and they have all been so carefully examined by the Commendator Dolomieu that little remains for me to add to his observations. The first five are situated between Lipari and Stromboli, and it is manifest to ocular inspection that they are the work of fire.

Basiluzzo is about two miles in circumference, and is raised some poles above the surface of the sea. On the south side is a narrow bay, which I entered on the morning of the 7th of October, on my return from Stromboli to Lipari. I went on shore, and, by a winding path, soon reached the summit, which is a plain of no great extent, and the only place capable of cultivation, though it produces only a little corn and pulse. This scanty vegetation is nourished by a thin crust of decomposed lava, under which we soon discover the solid lava, which, in many situations, is granitous, the quartz, felspar, and mica, being very apparent in it; as has been before observed by the excellent French Naturalist above mentioned; and on making the circuit of the island we find that almost all the remainder of it is composed of similar lavas.

Two little cottages which belong to the proprietors of this ungrateful soil are the only buildings here. Near them are some ancient ruins, amongst which I found a piece of red porphyry, spotted with reddish felspars. I at first imagined it a volcanic product, but soon changed my opinion; since I could not find any specimen of the same stone on the whole island, and because I was convinced, on a more careful examination, that the fragment in question was an ancient Egyptian porphyry, which had been polished by art, and had never been exposed to the action of the fire. I was therefore

induced to believe, from the circumstances of the place in which I found it, that it had either made a part of the materials of some of those ruined edifices, or, which seemed more probable, that it had been brought thither by the people who had once inhabited them.

Rabbits are the only animals found in Basiluzzo; but these had nearly reduced to despair the few inhabitants of the island, by the mischief they did to their corn, till they at last brought against them an enemy capable of following them through their subterranean holes,—I mean the cat.

From Basiluzzo I proceeded to Bottero and Lisca-Bianca, two rocks abounding in crusts of sulphate of alumine (alum), and for the most part formed of lavas whitened, and so decomposed that they are easily reducible to powder. This decomposition has manifestly been the effect of acid vapours, though of these there is at present no sign; except that near these two rocks we meet with a strong smell of sulphurated hydrogenous gas, and following it where it is most powerful, are led to a shallow part of the sea where a great number of air-bubbles rise with rapidity, and as soon as they reach the surface burst. This gas it is which produces the smell.

The sea could not have been more favourable for the collecting this æriform fluid; since when I sailed from Lipari to Stromboli it was stormy and ran high, but on my return was perfectly calm. I secured, therefore, a sufficient quantity of it in some flasks, which I had taken with me in my journey through the two Sicilies, in order to make some experiments on it when I should arrive at Lipari, the result of which I shall here, as it seems the proper place, lay before the reader.

This gas, when a lighted candle was applied to it, rose in flame, but with scarcely any detonation. It took fire slowly, and the flame was of a reddish blue. It was therefore a sulphurated hydrogenous gas, as more evidently appeared from its having deposited some particles of sulphur in the vessel in which it was fired. The little depth of the sea at the place from which this gas issued, and its perfect calmness, enabled me to make another experiment, by letting down, by means of a small rod, precisely on the place from which this gas rose, one of these thermometers, which, in consequence of being included within several wrappers, slowly receive, and lose as slowly, the temperature to which they may be exposed. After having left one of these immersed under the water for three quarters of an hour, I found, on drawing it up, that the mercury had risen to 28 (96½ of Fahrenheit), though in the atmosphere above the surface it only stood at 20½ (69 of Fahrenheit). A hot exhalation therefore arose from that part of the bottom together with the sulphurated hydrogenous gas; an observation which renders it probable that a latent fire still remains there. The depth of the water was eleven feet; and it was evident that the bottom was a continuation of the rock Bottero.

Scarcely a mile from Lisca-Bianca and Bottero, towards the west, a third rock rises above the water, named Dattolo, the formation of which is likewise to be ascribed to lavas, in a great degree decomposed like the former, and some of which have an iron-red colour. M. Dolomieu says, that a spring of boiling water gushes out at the foot of it; but all my endeavours to discover this spring were fruitless. The sailors who managed the boat in which I was, and who were natives of Stromboli, and, from making the passage from their island to Lipari, several times in a week, must be acquainted with every part of that sea, and all the rocks it contains, assured me that they had never seen nor heard of any such spring. I shall not, however, venture to deny its existence, but am rather willing to believe, that neither they nor I discovered it from want of attention. Supposing its reality, it certainly is a proof that the conflagration under these rocks is not entirely exhausted.

Proceeding still from Stromboli towards Lipari we next arrive at Panaria, which is not a rock but an island, in circuit more than eight miles, though it is but little raised above the sea. The rock of which it is constructed is here, likewise, volcanic granite; but as it is in many places superficially decomposed, and in others mixed with substances very easily decomposable, a rich soil is afforded in various parts of the island, on which olives, and other fruit-trees, cultivated by many families resident here, luxuriantly flourish.

We must therefore ascribe the origin of this group of rocks and islands to submarine conflagrations. But are we to conclude that each of them owes its formation to a particular volcano, or that these rocks and small islands are no other than the remains of a very ancient larger island, in a great degree destroyed by the powerful action of the waves of the sea? M. Dolomieu is of the latter opinion, in support of which he adduces many plausible arguments, conjecturing that this island was the ancient *Euonimos*, the seventh of the Eolian isles, which, according to Strabo, lay on the left in sailing from Lipari to Sicily, which is exactly the situation of the small islands I have described. I shall not repeat the reasons by which he supports this conjecture, but refer such of my readers as may be desirous of examining them to the author's own work.

Late in the night of the same day I returned to Lipari, where I had my residence, and whence, from time to time, I made excursions to the other neighbouring islands. As the sea was perfectly calm during the whole of that day, we could make no use of our sails but were obliged to perform the whole passage by the assistance of our oars. So great a calm in that sea, which is usually tempestuous, is extremely rare; and, indeed, during my whole continuance among these islands, I did not witness such another day.

In the morning I embarked for Saline, which is so near to Lipari, that, by the aid of a light easterly wind, I arrived there in less than an hour. This island derives its name of Saline (or the salt pits) from the muriate of soda (sea salt) which is dug on one part of the shore. It was anciently called *Didyme*, or the twin, from its appearing at a distance bifurcated, though on a nearer approach it is found to be trifurcated, as its summit terminates in three points. Among all the Eolian islands, this, after Lipari, is the largest, since it is more than fifteen miles in circuit. From the examination which I made of its shores, and the parts of a moderate elevation, I ascertained that its structure was an accumulation of currents of lavas. Of these M. Dolomieu has examined and described several: I principally fixed my attention on those which descend from the south side of the island to the sea. It is evident that they have flowed from the summit of the mountain, and fallen almost perpendicularly into the sea, after a course of a mile or more. But it is, at the same time, equally evident that these currents have flowed at different periods. In many places they are found with deep fissures, though it is difficult to say, whether these have arisen from the lavas suddenly congealing, and thence contracting and opening in many places or whether they have been produced by the action of the rain waters or by some other cause. However this may be, these fractures are a kind of anatomic dissections of the lava, which shew that the upper coat of it lies upon another, and that upon a third, below which are many others. It is also to be remarked that these strata are commonly specifically different from each other. We must therefore conclude, that as many currents of lava have flowed from the highest part of the mountain, to the south, as there are distinct strata; and it is probable, that were we able to penetrate to the most internal part of the island, we should find the whole, or almost the whole of it, of a similar formation.

This certainly is the structure of almost all volcanic mountains. Their beginning is but small, and proportionate to the quantity of the first eruption; but as the succeeding eruptions

eruptions increase in number and extent, they augment in size and solidity, till in time they acquire considerable dimension. In this manner, in fact, appears to have been produced the immense bulk of Etna, Vesuvius, the islands of Lipari, and many other burning mountains. I do not, however, deny that there are some which are the offspring of a single eruption, as Monte Nuovo, near Pozzuolo, and Monte Rosso, on the side of Etna.

It appears to me superfluous to particularize the different qualities of the lavas, since, as has been observed by M. Dolomieu, they are common to other volcanos. I shall only remark, in general, that I did not find one which can properly be called simple, as they all abound, more or less, with felspars and shoerls, and have for their base the petrosilex, and the horn-stone.

No traces, at present, remain of those volcanic fires which have produced Saline, except the currents of lava, and some vestiges of ancient craters on the summits of the mountain.

When treating of Stromboli, we found that the natural rocks, which, by their fusion, gave birth to the island, were a species of porphyry, having for their basis either the petrosilex or the horn-stone. We have now seen that the rocks to which Saline owes its origin are of the same kind. But the formation of Basiluzzo and Panaria has been different; the rocks which have there been converted into lava by the action of the fire being granitous; and it seems probable that the spacious volcano, which it has been conjectured, once arose in the sea between Stromboli and Lipari, and of which, at present, only some small remains exist in Basiluzzo, Dattolo, and Panaria, derived its origin from the same stone.

In pursuance of the plan I have prescribed to myself of subjecting to our common fire some natural rocks similar to those from which the Eolian isles have been formed, I shall here describe the effects produced by the furnace on different specimens of granite; and I must add, likewise, that the difficulty with which, it is well known, granites are fused in our common fires, was to me a considerable inducement to make these experiments.

The furnaces which are worked at Pavia, at a certain season of the year, only fuse common glass, that is, such as is blown into small vessels, and is but little transparent, of a yellowish or greenish colour, and usually full of bubbles; but at another season they will melt fine crystal glass, manufactured for the same purposes, and which is white, transparent, and much purer. The greater part of the volcanic productions mentioned in this work, as also the analogous natural stones, have melted in the furnace in which common glass is made; but the specimens of granite have proved more refractory, and in the same degree of heat have only been rendered friable from the enfeebled affinity of their aggregate parts; or, at the utmost, a few of them only have been found covered with a thin vitreous varnish. I was therefore obliged to have recourse to the furnace in which the crystal glass is elaborated, when the heat was nearly $87\frac{1}{2}$ degrees of Wedgwood's pyrometer, or, according to the observations of Mr. Wedgwood, only $2\frac{1}{2}$ degrees less than the welding heat of iron. The following are the results afforded by several species of granite, after having been continued in this heat during forty-eight hours.

I. Granite of Mount Baveno, in the Milanese. This granite, which forms a great part of the materials of the principal public and private edifices in Milan, Pavia, and other towns in Austrian Lombardy, has for its constituent principles, quartz, mica, and felspar. There are two varieties of it; one, in which the felspar is white, and the other, in which it is of a more or less deep flesh colour.

The

The fire changed the mica, and produced a beginning fusion in both the varieties of felspar, which abounded with microscopic bubbles, without however acting as a flux to the quartz, which, calcining, acquired a whiteness, without, however, losing its vitreous nature, and the degree of transparency it possessed. The sharp angles and projections, if they are felspathose, become blunted and round; and the fragments, if there are more than one, adhere in consequence of the slight fusion of the felspar, but they never incorporate into one mass within the crucible; on the contrary, they become extremely friable.

II. Mount Baveno likewise produces a granite which may be considered as a different species from that now described, and which is equally used in buildings. It is schistous, and easily separates into large flakes. The mica, which is of a shining black, instead of being dispersed within it in separate scales, extends in broad leaves, placed one over the other; and the quartz and felspar are frequently distributed in flakes.

This granite loses its solidity in the fire, without fusion; but the mica and felspar shew evident signs that they have been softened.

III. Granites of the Italian Apennines. Though a considerable part of the Alps which surround Italy abound with these rocks of the first formation, they are very rare in the Apennines, which are principally formed of calcareous stone, sand, sand stones, and steatites. In the various excursions which I have made to different parts of them, I have rarely found this stone, and never but in very small quantities and detached pieces, without being able to discover whence they came. In the spring of the year 1790, I collected some of these scattered pieces in the river Stafora, at the foot of a hill, a few miles from the town of Voghera. They were of three species: the following are the distinguishing properties of the first.

Its constituent principles are four: the quartz, of the colour of water, scattered in small but numerous pieces; the black mica, in few and extremely minute flakes; the felspar, rather abundant, and of the colour of honey; and very small shoerls, included within the felspar.

The pieces, except they adhered together, retained, when they came out of the fire, the same figure they had before, though the felspar's were a little, and the shoerls entirely fused.

The second of these granites, with respect to its component principles, is similar to the common, consisting of mica, felspar, and quartz; but it is one of the hardest and most beautiful that I have seen, and takes a very elegant polish.

In the fire the quartz becomes almost pulverulent, the felspar assumes a slightly enamelled surface, and the fusion of the black mica covers the pieces with a thin coating which has an unctuous appearance.

The third granite has for its component principles semi-transparent quartz in small and rare grains, and felspar in large and numerous particles.

In the furnace the quartz becomes friable, but in the felspar we only perceive signs that it is softened.

IV. In Chapter XI. I have mentioned an Egyptian porphyry which was exposed to the fire. I shall now add that this stone, from porphyritic that it was, became in many places granitous. In consequence, therefore, of forcible separation, or insensible alteration, the mass of porphyry may be lost, and succeeded by the granite, composed of shoerls, abundant felspars, and argillaceous particles.

In the furnace, this granite imperfectly fuses into an ebullient scoriaceous enamel.

V. This granite, as it contains sulphure of iron, and red sulphurated oxyde of mercury (cinnabar), merits a particular description. It forms a mountain in the district of Feltré, in the Venetian territory; to the east of which lies the *Valle Alta*, to the west

the *Acqua Pezza*, to the south the *Bosco delle Monache*, and to the north *Vallone*. Some years past, this rock was dug into, and perhaps is still; not to employ it in building, but to extract the mercury with which it is impregnated, and of which it furnishes fifteen parts out of a hundred. This interesting information I received from Signor Francesco Antonio Tavelli, student of natural history, under whose directions these excavations were undertaken, in the year 1786. He furnished me with several fine specimens of this rock, which I immediately perceived to be granite. Its component parts are quartz, in crystallized grains; felspar, in lamellar, semi-transparent, whitish scales; and steatites. The latter does not form a paste, or common cement, which conglomerates the quartz and felspar but is distributed in such a manner, that these three constituent parts adhere together solely by the force of attraction. The steatites is soft and schistous, and of a dark green colour. This is the only part of the granite to which the sulphur has penetrated; to free it from which, it is necessary to break it into small pieces. The sulphur, therefore, has sometimes mineralized the mercury and sometimes the iron. Some parts, however, of seven or ten lines, and frequently even an inch and a half, or two inches, in thickness, are of a lively red, though the steatites has lost its peculiar texture; and these parts, as they abound most with mercury, are the heaviest. The rest, on the contrary, are lighter, as they contain a less quantity of this metal; and hence, likewise, their colour is of deeper or paler red. In the midst however of this diversity of tints, the felspar and quartz seem to have been impenetrable by the sulphur, and, in the reddest places, still preserve their natural colours and respective degrees of transparency. But in other parts of the steatites, the sulphur has mineralized the iron, producing sulphure of iron. This is of a brassy yellow, and sufficiently soft to decompose in the air, efflorescing, and emitting sulphate of iron (vitriol of iron). About four years ago, I received from Signor Tavelli at Venice some pieces containing this sulphate, which I put into a box; and a few months after found them to be broken, and covered with a yellowish efflorescence. When touched with the point of the tongue they occasioned a strong astringent taste, from the presence of this sulphate (vitriol), which, in fact, is likewise procured from that rock.

When this granite came out of the furnace, the steatites and the felspar were blended into one porous scoriæ, but the quartous grain remained unfused.

VI. The experiments on Numbers IV. and V. are, however, less to the purpose, since, if we should compare, by the means of our common fires, the granites which are found fused at Basiluzzo and Panaria, the constituent parts of which are felspar, mica, and quartz, and the natural granites; the latter must necessarily be found to consist of the same principles. I have already, as has been seen, made the proof with several, nor did I neglect to do the same with five other species, which I do not describe that I may not tire the reader. I shall only say, in general, that the quartz was always infusible; the mica, in two instances melted; and the felspar, every time, gave signs of a beginning liquefaction; which occasioned the pieces in the crucible to adhere together, but without forming a consolidated whole, as the effect of complete fusions.

VII. As M. Dolomieu has remarked that the Eolian isles have a part of their base of granite, I endeavoured to discover from what places it might derive its origin; and, after several laborious researches among the mountains of Sicily, concluded that it proceeded from rocks of the same species, extending to the mountains of *Capo di Basiluzzo*, which are in part formed of granite and have likewise their direction towards this island.

In my passage from Lipari to Messina (a distance of about sixty miles) I made some stay purposely at this cape, which lies about the midway, judging it to be of importance to examine the nature of the place; and I, in fact, found there granite.

Mica,

Mica, sometimes black, and sometimes of a silver colour; blueish, and sometimes milk-white quartz; and reddish or whitish felspar, are the three component parts of this granite, sometimes distributed nearly equally, and sometimes in very unequal portions. Sometimes, though rarely, the mica is hexagonal; and the felspar shews a beginning crystallization.

This granite is not found in strata, but large masses, which form a considerable part of Cape Melazzo and its environs, and in many places extend quite to the sea. Here, likewise, we discover, under the water, the ruins of a very ancient edifice, built of this stone.

As, therefore, it appeared extremely probable that this granite was the same with that of which Panaria and others of the Lipari islands are composed, it was more particularly requisite that the same experiment should be made on it in the furnace, which had been made on the other species; and since the proportions of its three elementary parts varied in it, I took five varieties, and placed small pieces of each in separate crucibles.

The result was, that the mica became more fragile, the felspar exhibited some signs of fusion, and the quartz lost its transparency and became full of flaws. The pieces, however, all retained their original form.

VIII. In Panaria, and some parts of Basiluzzo, are found pieces of granite, in which the fire appears not to have caused the least alteration; and yet there is every reason to believe that they have been thrown out of the mouths of volcanos, though they are still in the natural state in which they are found in the bowels of the earth. This granite in its three constituent principles, and the qualities of each of them, extremely resembles that of Melazzo. It likewise resembles it in its resistance to the fire, as only some traces of fusion in the felspars are observable.

IX. Lastly, I made some experiments on certain specimens of granitous lavas, which have formed currents at Panaria and Basiluzzo; but the result was not more successful than with the other granites: they entirely resisted the fire, except that the felspar was in some places thinly covered with a kind of enamel varnish. This was one of the very few lavas which was not fusible in the glass furnace.

These facts sufficiently prove that these granites, such at least as are composed of quartz, felspar, and mica, are infusible in a heat of $87\frac{1}{2}$ degrees of the pyrometer of Wedgwood, though continued in it for forty-eight hours; a heat which, as has been said, is only $2\frac{1}{2}$ degrees below that in which iron begins to fuse, which is at 90 degrees of the same pyrometer. I determined, therefore, to expose these stones to that degree of heat, or even a greater, having recourse to a wind-furnace in which iron is completely melted. In this, in less than an hour, a fusion took place which was perfect or little less in the felspars, and beginning and sometimes complete in the mica; but the quartz shewed no signs of liquefaction. When, therefore, the quantity of the felspar was greater than that of the two other component parts, the pieces in the crucible formed one single mass, with a smooth surface, either uneven, concave, or convex, in the same manner as in the fusion of lavas. The mass, however, was not homogeneous. The felspar, whatever was its colour, became of a milky whiteness, extremely smooth and shining, and considerably harder. It is remarkable that the mica which, in some granites, was of a silver whiteness, and in others of a gold colour, is changed in consequence of its fusion to a deep black*.

These

* I shall here add a remark, which I had intended to make in the introduction to this work, but which will not be improperly placed here. As in these fusions I make use of crucibles of clay, it may be objected to me, that I am not certain whether the substances on which I made my experiments were fusible in themselves,

These experiments when compared and considered must lead us to conclude that the fusion of granites requires a very violent heat; and with these experiments likewise agree those made on stones of the same kind by MM. D'Arcet, Gerhard, and Saussure. I have said *in general*, since I do not deny that, in a less intense fire, the fusion of the felspar may be obtained, in some species of granite, which may draw after it that of the quartz*. Though in the almost endless varieties which I fused and have described in this work, the felspars in general were refractory; yet they sometimes easily melted in the furnace used at Pavia for the manufacture of common glass, the heat of which, as has been said, is much less than that employed in making crystal glass. This has been proved in the felspars of the lavas of Ischia, which, whether mechanically united to other substances, or single, completely fuse†. The facility with which some few felspars melt, and the refractoriness of others I have found to proceed from the different quantity of flix they contain combined with other earths, which is small in the former, and very abundant in the latter. If therefore a granite which has for its base the felspar contain but a small portion of flix, there is no doubt but its fusion may be obtained with a moderate heat. It is, however, certain, from the experiments above adduced, that completely to fuse the felspar in the granite of Cape Melazzo, and in the detached pieces of a similar kind found at Panaria and Basiluzzo, as also that which constitutes the basis of the lavas of these two islands, not to mention other species which have been enumerated, a very strong heat is necessary, and equal to that required to melt iron.

It hence appears to be sufficiently proved that the volcanic fires which have produced Basiluzzo, Panaria, and the other neighbouring islands, must have been extremely violent; the importance of which deduction will more distinctly appear when we come to consider the question relative to the activity of volcanic fires in general.

selves, or in consequence of their combination with the clay of the crucible. *But I answer, in the first place that this combination rarely happened; and that when it did, it was too conspicuous not to be perceived, as the crucible was more or less corroded. Secondly, that I did not form my judgment of the fusibility of the substances I examined, from the parts of them in contact with the crucible, or at a little distance from its sides; but from those near the middle, where, from the distance, this combination could not have place, as the circular mouth of the crucibles I used was two inches in diameter. When, therefore, I speak of the fusion of any product, I consider myself as perfectly certain that the clay of the crucible had no part in it.

* Morveau, in a letter to the Comte de Buffon, writes, that two pieces of different kinds of granite, being placed separately in the crucible, in less than two hours melted into a homogeneous glass. (Buffon *Miner.* t. i. in 12.): but he neither specifies the constituent parts of the two granites, nor the degree of heat necessary to fuse them.

†. See Chap. V. near the end.

CHAP. XIII. — VULCANO.

Different parts of this island distinctly visible from the summit of the Monte della Guardia, in Lipari.—Shore of the island entirely formed of volcanic productions.—Vulcanello, a small island, once separated from Vulcano, but long since united to it by an eruption.—Two singular lavas of Vulcanello.—Its crater.—Surrounded by sulphureous fumes and hot exhalations.—Lumps of sulphur found in the earth through which these fumes pass.—Grotto celebrated for a medicinal water which it contains, and other peculiarities.—Summit of the mountain scattered over with vitreous lavas, pumices, and glasses.—The transition of the pumice into glass distinctly observable.—Hot sulphureous exhalations on the side of the mountain which has the figure of a truncated cone.—The stones found there, whitened and decomposed.—Other similar fumes higher up the mountain.—Subterranean noise heard there; with a shaking of the earth when struck with the foot.—Sulphur formerly extracted at Vulcano by the Liparese, and purified on these heights.—This profitable labour now abandoned, and why.—New sulphur re-produced where it had been dug up.—The larger crater of Vulcano situated at the summit of the truncated cone.—Descent of the Author into the crater.—Its interior described.—Subterranean noise heard at the bottom of the crater.—Wind which blows at the bottom generated by sulphurated hydrogenous gas.—Extreme heat of the bottom.—A kind of hill in the middle of it exhaling a quantity of vapours, and incrusted with various minerals.—Reverberated sound produced in it by the falling of a stone.—Gulph immediately under it in which a strong fire burns.—Blueish sulphureous flames seen by night rising from this bottom.—A cavern of considerable size hollowed in the sides of the crater, which descends to the bottom.—Objects most deserving notice in this cavern.—Glasses and pumices of this volcanic bottom decomposed by sulphureous acids.—Prismatic or basaltiform lavas, which derive their origin from fire, discovered within it.—Erroneous opinion of M. Sage that the decomposition of the lavas, and other volcanic productions, is to be ascribed to the muriatic acid.—Demonstrative proof that these decompositions are the effect of sulphureous acid vapours.—Incidental notice of another error of that chymist, relative to the Grotta del Cane, near the lake Agnano.

AS from the top of a lofty tower which overlooks a spacious and noble city, we command a perfect view of the latter, its circuit and extent, its lofty and sumptuous palaces, and its numerous edifices; in like manner, from the summit of the Monte della Guardia, one of the highest mountains in the island of Lipari, we contemplate with astonishment the circumference, the massy body, and the various distinct parts of the neighbouring Vulcano.

To this mountain I, therefore, repaired, expressly to take a comprehensive view of the island previous to my visiting it; in which, besides the course and inclination of its rocks and cliffs, its craters are clearly perceivable, and it may be distinctly seen that the form of the larger is that of a truncated cone. The white fumes which ascend from it are likewise very visible by day, while by night the atmosphere above the crater assumes an obscure redness. Here too, we may most distinctly perceive the junction of Vulcano to Vulcanello; which latter, as is well known, was anciently an island separated from Vulcano by a narrow arm of the sea, that has since been filled up with earth by a violent eruption. The new land which has joined the islands may be very clearly seen, and appears to be formed of a sterile sand. The two small havens at its extremities, one of which is called the eastern, and the other the western, are likewise distinctly visible.

Such was the anticipated pleasure afforded me by this mountain, which was afterwards still more increased, and accompanied with still greater instruction when I coasted the island in a boat. Its shore is about eleven miles in circuit, and every where presents to the eye the traces of fire, in the remains of streams of lava, enamels, vitrifications, puzzolanas, and pumices.

Vulcanello has long made a part of Vulcano, but is still perfectly distinguishable from it by the interposed land. It has the form of a scalene triangle, two sides of which sink abruptly into the sea, and merit examination more than any other parts of the shore. They consist of many strata of lava, several feet high, and piled one above the other. When they flowed, they must certainly have extended farther into the water; but they have been broken, gradually, by the violence of the waves; and their fractures now form a kind of wall of a great height, which descends perpendicularly into the sea. As the water here is shallow, the bottom may be seen scattered over with large pieces of these lavas; and the wall, on a near approach, presents to the eye a number of currents of lava, which have flowed at different times, and differ in their colour, component parts, and consistence.

The appearance of these currents of lava, which have flowed one over the other, reminded me of what I had observed several years ago, in the glaciers of Switzerland; where some parts of the snowy coating being broken, the different strata of snow, which had fallen at different times, are distinctly discernible by the difference of the colour.

As the greater part of these lavas differ very little from those of other volcanos, I shall not give a description of any of them except two only, which appear to me not to be common.

The first lies buried in the midst of the others, and would, therefore, only become visible by cutting them away, did not the superincumbent lavas, which are in several places broken, discover it in those fractures. In its superficial parts it is a true enamel, very black and shining, entirely opaque, which easily crumbles, and in which are incorporated many spherulaceous and felspathose scales. This enamel contains tumors marked with stripes and large threads, which appear every where in it, but always run in the same direction, which is that of the course of the lava, or from the mountain to the sea. The substance of these stripes and threads is likewise enamel. Their presence and direction sufficiently indicate that the enamel when it flowed and entered the sea was rather of a soft consistence than fluid.

I at first imagined that, as the other contiguous lavas were each of one substance through the whole of their depth, it must be the same with this enamel, as far as it formed a distinct current, as we shall see in the enamels of Lipari; but, on breaking some of the larger pieces, I found that this was not the fact. The enamel is only the superficial part, or crust, of a lava, many feet deep, which crust, where it is thinnest, is scarcely more than a line in depth, but where thickest frequently more than two inches. It cannot, however, in any manner be considered as a later product, or as having flowed after the lava and attached itself on it; this crust of enamel is certainly a true continuation of the lava itself, as I have, in my opinion, satisfactorily ascertained by repeated and careful examinations. The enamel, therefore, after having formed this crust of greater or less thickness, suddenly lost its distinctive characters, and changed into a lava of a reddish grey colour, dry, rough to the touch, earthy, emitting an argillaceous odour, and having for its base the hornstone, without losing its scales of spherulites and felspars. We must hence conclude that the current was more affected by the fire on its surface than in its internal parts; for I know no other mode of explaining this phenomenon.

From this enamel and lava, when exposed to the furnace, results a similar enamel; that is to say, one of a dark grey colour, very hard and compact; with a fusion of the shoerls, and a semi-fusion of the felspars.

Another product with a horn-stone base, of a very singular quality, and which I do not remember to have seen any where else in my volcanic travels, is found on one of the sides of Vulcanello that descend perpendicularly into the sea, and, having been broken in different places by the violence of the waves, present upon the shore, and within the water, a large heap of fragments of a globular form. At the first view it might be taken for a tufa. It is rather light than heavy, may be crumbled to powder between the finger and thumb, imbibes water, with which it is in a few moments saturated, with a kind of hissing sound, and emits an argillaceous odour. We know that similar properties are usually found in volcanic tufas: but these have an earthy grain, whereas the present substance rather inclines to the vitreous. Besides, when the shoerls it contains, which are innumerable, are examined, they are found to be distributed equally as they usually are in lavas—a distribution never met with in tufas, in which the shoerls that are sometimes found in them are scattered confusedly and at random. Hence as they are extraneous bodies, they are easily detached from the tufaceous mass; but this is not the case with the product in question, which, consequently, we must consider as a true lava.

But to what are we to attribute its softness? Perhaps it has been considerably changed on the surface by sulphureous-acid vapours, by length of time, or some other unknown cause. Such, at least, was the first idea which presented itself to my mind, but which I found inadequate, both because in that place no sulphureous fumes exhale, nor are there any indications that any ever have exhaled; and, because, having procured this lava to be dug up from the depth of five feet, I found it, there, extremely soft as well as at the surface. I am rather of opinion that this lava is the result of the combined effect of fire and water; as examples are not wanting, in volcanized countries, of similar combinations. I mean that the lava, while flowing, was met and penetrated by a stream of water, that had gushed from some aperture of the volcano, by which it was suddenly cooled, and lost that coherence which is usually the property of lavas. I found this opinion on several observations. I perceive that the lava has a number of cracks and fissures, such as are usual in stony substances which, while in a state of fusion, have come into contact with water. I observe that the shoerls, which in other lavas have the hardness of glass, are in this so friable that they may be scratched with the nail; and as such appearances are not usually the effects of volcanic fire alone, I know not to what to ascribe them but to the action of water; since vitreous substances in a state of fusion are affected in precisely the same manner by contact with that fluid.

The ebullient though hard enamel, which is the result of this lava in the furnace, is of a fine deep black; the shoerls are melted; and it is worthy remark that in it we discover some small flakes of white felspar which before were not discernable in the lava on account of its cinereous colour.

The two lavas I have described, as likewise others of which I have omitted the description on account of their being common, and which together form the two sides of Vulcanello, appear by their direction all to have proceeded from the crater, which is about two hundred paces distant from the sea; and which still retains its natural figure of an inverted tunnel, except that the bottom is covered to some height by earth which has been carried down by the rains from the internal sides. These sides are formed of pulverized clay and sand, and are marked with deep furrows caused by the descent of the

rain water. The circumference of the bottom of the crater, judging by the eye, cannot at the utmost be more than seventy, but that of the top is about the sixth of a mile. Its depth is scarcely eighty feet. The crater on the outside is surrounded with rocks of lava, probably the consequences of an eruption. It is evident that, as more earth is continually falling into it, it must at last be filled up; and as the external sides of it are ill-formed, there is no doubt but that one day every trace of it must be lost. We hence perceive how many volcanized countries may appear, and in fact do appear, to be destitute of craters; these not having been able to resist the injuries of time.

Here was it that I began to perceive the indications of the subterranean burning furnace; for round the crater of Vulcanello many streams of a white smoke arise; and it is only necessary to strike the ground with the foot to produce more. They are very hot, as are likewise the apertures through which they issue, and which, in the night, from time to time, emit a feeble flame. The ground, which fumes at the surface, within, contains crusts of sulphur, which are most abundant in the places where the fumes exhale most copiously. But we shall soon have occasion to treat more at length of the sulphur of this island.

From Vulcanello I proceeded to a grotto which has obtained some celebrity on account of a mineral water it contains, and is at the distance of about a mile from the western haven. To reach this water it is necessary to descend into the grotto, the entrance of which is so narrow, that you are forced to stoop very much, and almost creep on the hands and knees. It is a moderately large cavern, incrustated round with sulphate of alumine (alum), muriate of ammoniac (sal-ammoniac), and sulphur. These minerals are found to be very warm, as likewise is the atmospheric air in this place, on account of the heat of which, the strong sulphureous smell, and the difficulty of respiration, it is impossible to remain long in the grotto, which you are obliged to leave from time to time to breathe fresh air. At the bottom is a small pool of very warm water, which is esteemed by the Liparese to be efficacious in many disorders. The Abbate Gaetano Trovati, a learned physician of Lipari, has published an analysis of this water*. I shall not therefore enter into a minute account of it, which would be superfluous, but shall only remark that, besides the sulphureous odour it emits, it contains abundantly the muriate of ammoniac (sal-ammoniac), and still more of the muriate of soda (sea-salt); which latter salt I imagine it derives from a communication with a neighbouring sea, with which it appeared to me on a level. Though its temperature is not higher than 80 degrees, it continually appears to boil, from the great number of air-bubbles that rise from the bottom to the surface, which they entirely cover. This water, in fact, so much abounds with this æriform fluid (which I found to be carbonic acid gas), that when shaken in the slightest manner a prodigious quantity of bubbles arise. I likewise observed, relative to the same object, that if a stone be let fall into this water, as it sinks, a vast quantity of these bubbles will ascend, and will continue to rush to the surface several minutes after it has reached the bottom. The continual emission of so much carbonic acid, which doubtless concurs to render the air in the cavern unfit for respiration, produces within the grotto a confused noise, which may be heard likewise without.

M. Dolomieu, in his account of this subterraneous place, observes that a considerable quantity of smoke issued from it. This, when I was there, I could not perceive; either because it had opened to itself another passage, or that the cause by which it was produced has ceased: changes not unfrequent in volcanic countries.

* *Dissertazione chimico-fisica sull' analisi dell' acqua minerale dell' Isola di Vulcano. Napoli 1786.*

To this place the ascent of the island is gradual; but the remainder of the way which leads to the highest crater of Vulcano is extremely rugged and difficult; as it lies over a long mile of continued heaps of lavas, vitrifications, and pumices. The fatigue, however, is alleviated by the pleasure which the instructive examination of these productions affords. Some of the vitrifications found among the lavas clearly manifest, that they were originally pumices, which, by a more intense heat, have passed into the nature of complete glass. The breaking of some of them proves this beyond the possibility of a doubt. We then find one part a common pumice; I mean resembling threads of silk, light, extremely friable, floating on water, and of a very white colour. Another part we find to be vitreous, of a different texture, less filamentous, less light, less white, and less friable. Still farther begin to appear long veins or threads of glass, which continually increase in thickness; and at last in another part of the piece, multiply and consolidate into a mass completely glass. This glass is semi-transparent, of a colour between grey and black, and so hard as to give sparks with steel.

It is worthy of remark that some of the black shoerls, and white felspars, incorporated in the pumice, are preserved entire in this glass.

The furnace melts neither of these; though it completely fuses the glass, which is changed into an extremely porous enamel.

Mixed with these curious combinations of glass and pumice are found true glasses, and true pumices, as also a variety of lavas, which having lost in a considerable degree, the texture of their primitive rocks, have acquired a vitreous appearance. They are extremely compact, give sparks with steel, are of a blackish or dark blue colour, and are not wanting in felspars and shoerls. Some of them will move the magnetic needle at the distance of three quarters of a line. One of them has become a volcanic breccia, as it contains within it fragments of other lavas which it enveloped while in a state of fusion. These fragments are of a coarse grain, and a spongy texture, and when minutely examined are found to derive their origin from the horn-stone, while that of the including lava is from the petrosilex. The same difference continues even in the furnace; the fragments becoming scoriaceous, and the lava a semitransparent glass.

These glasses, pumices, and lavas, do not form currents, but are found in large masses; and it is probable that they were thrown out of the mouth of the volcano in the same state in which we now see them.

As we proceed up this difficult ascent, we perceive, near the top of the truncated cone, five or six streams of smoke, approaching which we find that each of them issues from an aperture incrustated round with small crystals of sulphur. If a stick be thrust into them, and drawn out again soon after, it will appear black, and smoke. The earth is here extremely hot, every stone is decomposed, and of a white colour; and if new apertures are made with a staff (which may easily be done from the great softness of the ground) new fumes will immediately issue similar to the other; that is to say, white, very offensive from their sulphureous smell, and extremely hot.

Above these fumes there is a plain, of no great extent, which one is, at first, afraid to venture on, from the subterranean noise heard there, and from the shaking of the ground when struck with the foot. Here we find other sulphureous fumes, besides ammoniacal vapours, which, attaching to the decomposed lavas, generate thin crusts of that salt.

On this plain it was, that, formerly, stood the furnaces in which the sulphur of Vulcano was purified. But this useful labour has been long since abandoned, and even prohibited, from the supposition that the vapours arising from the purgation of the sulphur were prejudicial to the plantations of vines in Lipari. A few years ago, indeed, it

was again resumed, by the special permission of His Sicilian Majesty; but was soon again given up, not because any fear was then entertained that the vines would be injured, which the more judicious of the natives of Lipari are now convinced is a vulgar error, since they sustain no damage from the smoke of the crater of Vulcano itself, though that is beyond all comparison more in quantity than that produced by the purification of the sulphur: nor was it abandoned because the quantity of sulphur obtained was too little to repay the trouble and expence, as the vein is very rich and even inexhaustible; for wherever the ground about the craters of Vulcano and Vulcanello is but slightly turned, fine clods of sulphur are found; which are larger and more numerous the deeper the earth is dug into. My own observations have in this particular sufficiently confirmed the testimony of the people of Lipari: as I was convinced, in my different visits to the island, that in the very places from which the sulphur had been extracted, after a short time it is re-produced.

The real cause why the inhabitants of Lipari no longer continued this work was, that the ground, which on the surface is more or less warm, grows hotter the deeper it is dug into, and, at the depth of five or six feet becomes so hot as to be almost insupportable; to which is to be added the offensive stench of the sulphureous fumes that issue in great abundance from these excavations. If this mineral was once extracted here to great advantage, as we are assured by history, it seems certain that these difficulties could not then exist.

Continuing my journey towards the south from these forsaken furnaces, and having mounted a short but steep ascent, a second, but a much more spacious plain opened before me, which was every where sandy, except that a few erratic lavas were thinly scattered over it. Beyond it rose a considerable eminence, which when I had ascended, the noblest spectacle Vulcano can offer presented itself to my view, I mean its crater. Except that of Etna, I know none more capacious and majestic. * It exceeds a mile in circuit, the mouth is oval, and its greatest diameter is from the south-east to the west. This mountain externally has the form of a direct cone, and its crater that of a cone inverted. The height of the internal sides from the bottom to the top is more than a quarter of a mile. From the top, the bottom may be seen, which is flat, and from many places in it exhale streams of smoke, that rise above the crater and emit a sulphureous odour which may be perceived at a considerable distance.

After having made the circuit of the upper circumference of the crater, I became desirous to enter it, and descend to the bottom, to examine the internal parts; the southern side, which is not very steep, appearing to invite to such an examination. I was not willing however to undertake such an adventure alone, but wished for some one to accompany me, who might serve me as a guide, and, I may likewise add, who might keep up my courage. But my wishes were vain. The four sailors who had worked the boat which brought me to the island, and had gone with me to the edges of the crater, when they found I entertained thoughts of going down into it, positively refused to follow me, alleging the evident danger to which I should be exposed, and adducing the example of I know not what traveller, who a few years ago, having descended into this deep gulph, paid for his temerity by never coming out again. All my entreaties, therefore, and all offers of reward were fruitless; and I was obliged to return to Lipari without having been able to gratify my wish. These sailors were natives of Lipari, nor could I find any of their countrymen who would hazard accompanying me in making this experiment. So great is the dread they are inspired with by this volcano, proceeding probably from the fame of its ancient terrors, and also from some recent eruption, of which we shall hereafter have occasion to speak.

A resolute

A resolute Calabrian, who had been banished to Lipari for some crime committed at Naples, was the only one who, with the permission of the Marchese Chiavelli, the governor of that city, and the promise of a large reward, could be induced to go down with me into the crater. We descended on the 13th of September 1788. I have already said that the sides towards the south-east are not very steep, and on this side we therefore safely reached the bottom, where I proceeded to make such observations as I thought of most importance. I here perceived, more distinctly than I could above, that the crater was a hollow cone reversed, but truncated by the bottom on which I stood. The sides, except in that part where we descended, are every where inaccessible. As they are covered with sand, they are marked with deep furrows which are the effect of rains.

The bottom on which we stood, may be about somewhat more than a third of a mile in circumference. It is covered with sand, like the sides, and in form an oval. I soon perceived that it could not be walked over without danger, and that it was necessary to use the greatest circumspection in examining it. I have already mentioned the subterranean noise heard on approaching the crater of Vulcano. Here it may be said to be a hundred times louder. Under this bottom we seem to hear a river running, or rather a conflict of agitated waves which meet, and impetuously clash together. The ground, likewise, in some places cleaves in cracks, fissures, and apertures, from which hissing sounds issue resembling those produced by the bellows of a furnace. I therefore thought there was every reason to conclude, that these sounds are occasioned by an elastic gas which issues through those fissures; and was afterwards perfectly convinced of the truth of this supposition by the following facts; if the hand be approached to any of these clefts or apertures, a strong impression is felt of an extremely subtle invisible fluid; and if a lighted candle be applied to them it will, it is true, be frequently extinguished by the impetus of the fluid, but sometimes it will set fire to the fluid itself, producing a flame of a blueish red colour which lasts for several minutes. The fetid odour which is then perceived convinced me that it is a sulphurated hydrogenous gas.

The ground at the bottom was so hot that it burned my feet; and I should not long have been able to endure its heat, had I not from time to time got on some large pieces of lava which were not so hot. From the extreme heat, and the strong stench of sulphur emitted by every part of the bottom, so as to render respiration somewhat difficult, I could scarcely go round it, and it was quite impossible to cross it near the middle; at least it would have been very dangerous to have attempted it. About the middle of this bottom arose a circular eminence of about forty-five feet in diameter, from every part of which a dense vapour sublimes, and the surface is covered with crusts of sulphate of iron (vitriol of iron), sulphate of alumine (alum), muriate of ammoniac (sal-ammoniac), and sulphur; as I found by collecting and examining some fragments of these crusts at the edges of the eminence. Its heat is insufferable, and on pressing the edge with my feet I perceived it shake very sensibly, as if I had trod on a floor of boards which yielded and sprung up again under me. On letting fall a large piece of lava from the height of my body, a subterraneous echoing sound was heard, which continued some seconds; and this happened on whatever part of the bottom the piece of lava was let fall, but the sound was loudest near the eminence in the middle. These circumstances sufficiently proved that, while on this bottom, I walked over a gulph from which I was only separated by a flooring of volcanic matters of inconsiderable thickness, and that in this gulph the fires of the volcano still continued active, of which the subterraneous noise, the fumes, vapours, and extreme heat were evident indications.

Another

Another proof, in confirmation of this, is furnished by an observation I made at other times by night, for I was not contented with a single visit. This is, that, when it was dark, several blueish flames might be seen to rise from the bottom, to the height of half a foot, a foot, and sometimes higher. It is to be remarked, that those which ascended from the eminence before mentioned were more numerous and rose higher; and that besides those which issued spontaneously, it was in my power to produce new ones, by making small excavations in the ground. The strong disgusting sulphureous odour which all these flames emitted convinced me, that they were the effect of the sulphur itself, which still continued slowly to burn below, in a state of fusion.

But the object most curious and most interesting to a naturalist is a grotto, on the west side of this bottom, which, from the variety of things it contains, merits to be described at some length. It is an excavation in the sides of the crater a hundred and ten feet in height, two hundred and fifty in breadth, and ends at the bottom in a pit thirty feet in circumference. From this pit continually arises a column of whitish smoke, which alone equals in quantity, or perhaps exceeds, all the fumes that arise from the bottom of the crater. Its strong and suffocating sulphureous stench, and its extreme heat prevent any near approach. A part of this smoke, meeting with no obstacle, ascends in a direct line, and rises above the mouth of the crater; but another part of it, soon after it has issued from the bottom, is obstructed by some stones which jut out from the sides of the grotto; and attaching to the lower surface of these, the sulphur which had been sublimed with the smoke falls down again, and collecting in several places, forms stalactites of sulphur; some in the shape of inverted cones, and others cylindrical. The largest are three feet in length and two inches thick. On striking several of them with a stick, I found that this sulphur is extremely pure. Sometimes it is of a flesh colour, but more frequently of a fine yellow, brilliant on the surface, and semi-transparent where the stalactites are thinner; which properties also give value to the other sulphur that is dug round the crater of Vulcano, and exists likewise at its bottom; as I observed that in the fissures from which the sulphureous fumes issue, it is found consolidated in fragments of various sizes. The stalactical alone, however, has the cylindrical or conical form, which is produced by the fusion of its parts, and their descent by gravity; whereas that which is generated under ground is usually found in amorphous masses, and sometimes in strangely irregular configurations.

It seems scarcely necessary that I should mention the manner in which sulphur must be continually formed in this island; since it is well known that this mineral is not entirely consumed in conflagration, but that a great part of it is sublimed, unchanged in its substance, which again deposits itself, sometimes crystallized, and sometimes amorphous, on any bodies with which it may meet. As it is therefore perpetually burning in the subterraneous furnace of Vulcano, it continually produces those numerous white fumes which arise from various places, and those lumps, cylinders and cones of sulphur which I have before mentioned. The sulphur which is so frequently found in other burning mountains is generated in the same manner.

From the pit within the cavern, whence the cloud of smoke continually issued, a louder noise was heard, than at any other part of the bottom; and on throwing stones into it I could not perceive that they struck against any obstacle, as they gave no sound, but a kind of hissing one occasioned by the resistance of the air in their fall. It appears probable, that this cavern has an immediate communication with the subjacent furnace of the volcano.

From

From one of the sides of the cavern, at the height of eight feet from the bottom on which I stood, issues a small spring of mineral water, which leaves on the different lavas' depositions which well merit to be examined. If we suppose this water to proceed from the sea, it can only be by evaporation, as the level of the sea is very much lower than the place whence it issues. It may possibly derive its origin from rains, which penetrating to the interior parts of the mountain, and accumulating in some cavity, have found a free outlet, depositing in different places the heterogeneous substances with which they became impregnated in their passage.

Where this water flows, we find, in the first place, hanging stalactites of sulphate of alumine, some of which are of the thickness of ten inches, and a foot and a half in length. On breaking them, they are found to be a congeries, of barks or rinds, similar to the coats of onions, as stalactites in fact usually are.

Secondly, these stalactites are not always composed entirely of sulphate of alumine, but are mixed with muriate of ammoniac.

Thirdly, the sulphate of alumine, in some places, instead of being stalactical, is crystallized in beautiful stellated groups consisting of very fine silver silky threads.

Fourthly, between the stones where this water issues, we frequently find stalactites of sulphate of iron.

Lastly, on the ground where this water falls, we find a number of hollows filled with a kind of thick pulpy matter, which is no other than a confused mixture of all these salts, which, from the partial evaporation of the water, begin to assume a body and consistence.

The sides of the crater of Vulcano, and the oval plain which forms its bottom, are covered with sand, as has been already observed. This sand, however, cannot properly be so called, since it is a mixture of fragments and small particles of pumices, lavas and glass; among which are found, principally where the sulphureous fumes are strongest, entire and large pieces of vitrifications, pumices, and lavas, which well deserve the careful and accurate examination of the observing naturalist.

We will begin with the former of these substances. At the bottom of the crater of Vulcano we find a glass which is of a lead colour, and not unlike another kind found in ascending the cone of Vulcano. Many pieces which lie without the fumes are preserved unchanged; but many of those within them exhibit different degrees of alteration. The first and slightest degree is a thin cinereous coating, which invests the glass, and is less hard than the internal part. The sulphureous acids, therefore, have only acted on the surface of these pieces. In others they have penetrated deeper, as appears by the greater thickness of this tender and half pulverous coating. Some are so changed, that nothing remains of the glass but a small central nucleus; while others have entirely lost even this nucleus, and the whole piece, from being of a lead-colour, hard, semi-transparent, and smooth, is become of an ash-colour, soft, opaque, and yielding to the touch. In these, therefore, the glass has undergone a complete decomposition.

It had been discovered, long before I wrote on the subject of volcanos, that sulphureous acids would decompose lavas; but I believe I am the first who has observed a similar decomposition in volcanic glass.

In the same place we find pieces of various sizes, of a more perfect, harder, and extremely black glass; which, likewise, where the sulphureous acids abound, has undergone the same changes.

A number of particles of sulphur are frequently attached to the surface of both these glasses, and some are also found within their substance, where small fissures have opened to them an entrance.

We will now say a word of the pumices. They do not differ from those we meet with on the declivity which leads to the summit of the mountain, and which we observed with an intense heat, changed into glass. Yet these likewise suffered more or less alteration from the above-mentioned acids. In some their fibrous texture was reduced to a kind of pulverulent earth, which scarcely retained a single original filament. In others this texture was preserved, yet they might be easily reduced to powder by the finger.

It now remains to treat briefly of certain prismatic or basaltiform lavas likewise found in this volcanic bottom. In the first place, where the sulphureous acids are strongest, we find scattered pieces, superficially decomposed, which seem to have been broken off from larger columns. They have a pentagonal prismatic figure, with unequal sides and angles; and the larger pieces are about nine inches in length by eight in thickness. Their base is a petrosilex, which, from its having suffered fusion, is of a very singular kind.

In the course of this work I have frequently had occasion to speak of lavas with a petrosiliceous base, and shall certainly have occasion to speak of them again. They are all too strongly characterized for their base to be confounded with other stones. They, however, carry in them the marks of fire, in a certain fibrous appearance which they have, and which originates from a diminution of the affinity of aggregation when in a state of fluidity. The petrosilex of which I now speak, on the contrary, exhibits no signs of injury from the fire, though it is certain that it has suffered fusion. It is of that kind which is somewhat scaly; has a grain and hardness little different from that of flint; is transparent at the edges, of a shelly fracture, and of a livid ash-colour. When pulverized it becomes white. The pieces, when struck together, sound like flint. This stone contains a few irregular shoerls, of a black colour, and but little lustre.

After a continuance of forty-eight hours in a furnace of sufficient heat to liquefy the fine crystal glass, this prismatic lava with difficulty melts. To obtain a complete fusion, it is necessary to have recourse to a stronger heat; with which view I used a wind-furnace. After thirteen minutes, its volume increased almost threefold, from the diminished force of aggregation, and then the lava acquired a snowy whiteness. Continuing the same fire, its dimensions contracted, and it at length produced a white enamel, moderately hard, and interspersed with microscopic bubbles.

The first time I ventured to explore the bottom of the crater of Vulcano, I only found some fragments of this prismatic lava: but when I repeated my visits, and had divested myself of the fear I at first felt, and more carefully examined this dreary bottom, I was enabled to complete my discovery by ascertaining the origin of these prismatic, or, as some may choose to call them, these basaltiform lavas. For, raising my eyes to that part of the sides of the crater which was over my head, and facing the north-east, I perceived a large stratum of lava, almost perpendicular, divided lengthwise into complete prisms, some of which were continued with the lava and made one body with it; while others were in a great measure detached from it, so that, striking them with a long and heavy pole, I beat three of them down. I then clearly perceived that the pieces I mentioned above were fragments of entire prisms, since the external characters of both were precisely the same.

Each of these prisms, exceeded a foot in length; but, as far as could be judged by the eye, other prisms adhering to the mass, which I could not reach, were of much larger dimensions. The lava which contained them stretched to the ground, but did not appear of great extent, as its upper parts and sides were covered with a thick sand.

The production of these basaltiform lavas, which, from their situation, and their forming a whole with the lava, no one can doubt derive their origin from fire, may, I conceive, be thus explained. In former times an effervescence took place in the melted lava in the crater, which, after having swelled, and perhaps overflowed its edges, slowly sunk into the cavity of the crater, from the diminution of the fire, and the impellent elastic substances, while a portion of the lava attaching itself to the internal sides, and hastily cooled by the atmospheric air, contracted, and divided into regular parts, such as are the forms of the hexagon prisms above mentioned. Their perfect preservation and freshness are a clear proof that they are not of very ancient date.

I shall conclude this chapter with a few observations relative to the decompositions which I remarked in various productions both within and around the crater of Vulcano. These decompositions, I have said, were produced by sulphureous acid exhalations. I have asserted the same of some decomposed lavas in the vicinity of the volcano of Stromboli, as also of a great number of those of which Solfatara is principally formed*. And in general, when the question is of lavas, the alteration of which consists in being softened and rendered mild and saponaceous like argilla, and in a whitening of the parts, I perceive that the greater number of volcanists agree with me in sentiment. I find, however, that M. Sage is, of a different opinion, maintaining that such decompositions are generally to be ascribed to the action of muriatic acid, which is the cause of the greater part of the alterations that take place in the products of volcanic eruptions. He attempts to demonstrate this by the experiment of a black lava which, in his laboratory, became white and equally decomposed with those found in some volcanos, by keeping it in digestion in concentrated muriatic acid. Other similar experiments likewise confirm him in this opinion†.

That the muriatic acid is capable of producing decompositions in various volcanic productions analogous to those we frequently observe in the materials of burning mountains, I am the more easily persuaded, since, having repeated the experiment of the French chemist, I have found it accurate. I placed in two vessels, filled with concentrated muriatic acid, some fragments of two different lavas, the one from Etna, the other from Vesuvius, both of a colour approaching black, of the horn-stone base, and containing a number of black shoerls. Having closely stopped the vessels, I left them for a month; at the end of which time the lavas were become of a yellowish cinerous colour, and, having washed away the muriatic acid with which they were impregnated with distilled water, they lost the yellowish tincture, and became entirely of the cinerous colour. Some of them had likewise become in some degree friable, though before they were hard. The decomposition had in fact penetrated more or less to their internal parts, though the shoerls remained unaltered both in texture and colour.

This author however admits, in another place, that the sulphuric acid is likewise capable of producing the same effect, which I also experimentally ascertained on the two lavas above mentioned†. It is in like manner known that the sulphuric acid possesses an

* See Chap. II. and Chap. XI.

† *Elemens de Mineralogie.*

‡ Notwithstanding that, at the end of a month, the muriatic and sulphuric acids had been equally efficacious in producing alteration in the two lavas, yet, after a longer time, the muriatic appeared to be more powerful than the sulphuric. At the end of seven months and a half, on examining the lavas which had remained in the same situation in the two acids, I found that the muriatic acid had decomposed them more than the sulphuric. Besides that they had acquired a whiteness almost equal to that of snow, they had become very light, and extremely friable and spongy, from the corrosion of the acids. The shoerls remained black, but had lost their vitreous appearance. Both these lavas, likewise, contained a number of felspars, which suffered less than the shoerls, as they always retained their natural changing lustre. But the sulphuric acid only produced

an equal strength when the sulphur is caused to burn very slowly. It remains therefore to determine which of these two acids, the muriatic or the sulphuric, is the real cause of the decomposition and whitening which is frequently observed in products of volcanos, at least of those which I have most attentively examined, Stromboli and Vulcano. And though I shall, in another part of the present work, produce direct proofs, that some lavas, enamels, and volcanic glasses, sometimes give reception to the muriatic acid, yet certainly the decompositions in question are not to be attributed to this acid, but to the sulphureous. The odour of these acids is too different for them to be confounded; and both at Stromboli and Vulcano, in the places where these decomposed products are found, enveloped in white fumes, I very sensibly perceived the acrid, pungent, and suffocating fetor of the sulphur, as also the sharp taste, if a particle of the fumes by accident entered my mouth. I likewise particularly remarked at Vulcano, that where the sulphureous fumes were most dense, and left crusts of sulphur attached to the bodies they touched, these bodies, whether lavas, pumices, or glasses, suffered greater alteration than others; and in some of them, the decomposition had penetrated to the depth of two feet.

An experiment which I shall now relate offers a new and indisputable proof of what I have here asserted. At Vulcano, I left a piece of extremely black lava, which had for its base shoerl in the mass, and was one of the firmest and hardest I could find, in an aperture from which issued a great quantity of very hot fumes; and after it had continued there two-and-thirty days, I observed that, in its upper part, it remained untouched; its black colour only having become somewhat lighter; but on the sides, and still more on the lower part, where the impression made by the sulphureous fumes had been greater and more active, it was become white, with a sensible softening of the solid parts near the surface.

Had M. Sage, instead of deciding, while shut up in his laboratory, that the muriatic acid is the cause of the alterations which take place in volcanic countries, himself visited those countries, he would have thought differently; and had he in the course of such a journey entered the Grotta del Cane near Pozzuolo, the expression would never have escaped him, that this perpetual mephitic is produced by the volatile marine acid*.

produced in these lavas a cinerous colour, a less degree of friability and lightness than was caused by the other acid; and the black shoerls did not lose any of their glassy brilliancy. This acid was concentrated equally with the muriatic. Instead of the colour and limpidness of water, it was become turbid and dark. The muriatic had acquired a beautiful golden yellow. I must add, that, having poured some fresh sulphuric acid on the old, the decomposition and whitening of the lavas, after some time, was not inferior to that produced by the muriatic acid. I found a remarkable difference between the alteration observable in lavas in the vicinity of volcanos, and that which is effected by the sulphuric and muriatic acids, since the volcanic alterations are sometimes accompanied by an unctuous smoothness, I never observed in the two lavas exposed to the action of the above-mentioned acids, which, on the contrary, had become rough and scabrous.

* See Chap. III.

CHAP. XIV. — VULCANO, CONTINUED.

Among the few naturalists who have made a voyage to the Eolian isles, M. de Luc the only one who has entered the crater of Vulcano. — Summary of the observations made by him there, in 1757, compared with those of the Author. — Similarities and differences between the local circumstances of the crater at that time and those of the present crater. — Observations made by the Commendator Dolomieu from the summit of the crater in 1781. — Remarkable changes which have, since that time, taken place in the crater. — Commotion of Vulcano in 1786. — No eruption of lava from the crater has happened within the memory of any of the natives of Lipari now living. — The phenomena of this volcano habitually observed by them. — Visits made to this crater by Father Bartoli, in 1641, and professor d'Orville in 1727. — Interior conflagration through the whole of the crater at the first period. — Not one but two craters at the second. — Hill which at that time rose from the bottom of one of the two craters. — Vulcano then in its greatest agitation. — Some observations made by some aged natives of Lipari of a double crater at the summit of Vulcano. — Situation of this island on the side next Lipari, though there is no want of vegetation on the opposite side. — Porphyritic lavas in this part of the island, but greatly decomposed. — Small crater on the side of Vulcano described for the first time. — The fumes of Vulcano observed by some of the Liparese as signs of good or bad weather, in the same manner as the inhabitants of Stromboli consult their burning mountain. — Observations published by a native of Lipari, on the diversity of the fumes, and internal commotions of Vulcano, betokening, according to him, what winds will blow. — Observations of the Author not agreeable to those of the Liparese. — The fires of Vulcano more powerful at that time than now, if the accounts given by that writer may be relied on. — Ancient accounts of the conflagrations of Vulcano. — Number and size of its craters. — Its different eruptions. — This burning mountain, in a certain degree, comparable to Vesuvius and Etna. — Prognostics of the winds which may be expected to blow from the symptoms of the volcano very ancient; and perhaps deserve equal credit with the modern.

AMONG the very few naturalists who have made a voyage to the island of Lipari, M. W. de Luc is the only one, to my knowledge, who has entered the crater of Vulcano. This he did on the 30th of March, 1757, as appears from an account of the observations he made there, published in the second volume of the travels of M. de Luc, a summary of which account I shall here present to the reader, as we shall thus be enabled to compare the local circumstances which existed at that time, with those observed by me in one of the most superb and spacious gulphs at this day to be found among burning mountains.

He relates that he reached the bottom of the crater, by a narrow passage, which afforded him entrance, but with great risk of being suffocated by the dense sulphureous fumes that enveloped him; in consequence of which danger he was obliged to enter alone, the guide who had conducted him to the summit of the crater, and who was a native of Lipari, having refused to follow him. He found the bottom very rugged and uneven, of an oval form, with several apertures, from which issued sulphureous vapours, and from some a strong wind. The sound of his feet as he walked on it was very sensible.

The longest diameter of the oval appeared to him to be about eight or nine hundred paces, and the shorter between five and six hundred. The height of the sides of the

crater he imagined might be about one hundred and fifty, or, towards the east and the south, two hundred feet. At the bottom they were nearly perpendicular, and were composed entirely of volcanic materials.

A column of smoke, of fifteen or eighteen feet in diameter, issued from a cavern which above lost itself in one of the highest sides of the crater, and below ended in a kind of tunnel, or rather abyfs, of about sixty paces in circuit; and the fumes on issuing out of that abyfs roared like the vapour of boiling water, when it escapes from a vessel not closely covered. Several pieces of scorice being thrown into it were no longer heard when they had passed beyond the tunnel.

Another object likewise strongly attracted the attention of M. de Luc: this was an aperture, five or six inches in diameter, which terminated in a small tunnel about two feet and a half deep, from which the air rushed with as much violence as from the bellows of a forge. He threw into it great pieces of lava, which enlarging the opening, caused the wind to issue with less force, but the small pieces that were detached from the aperture were driven outwards by it. The fragments of lava which fell within, produced the same effect as the scorice thrown into the tunnel of the cavern. As these observations convinced him of the extreme thinness of the floor or shell on which he stood; he thought it advisable to quit this perilous gulph, and direct his researches to object less dangerous.

He then remarked that the sulphureous vapours of the volcano had here a communication with the sea, which was in many places of a yellow colour, and in others emitted fumes; and that in the places where the fumes rose its heat was intolerable; so that the fish that happened to approach that shore soon died, and the beach, where a few inches above the level of the sea warm veins of water burst out, was scattered over with dead fish.

Such is the substance of the observations of M. de Luc, made about thirty-one years before mine. On comparing the one with the other, it will appear, that if the internal parts of the crater of Vulcano have suffered some changes since that time, they are still essentially the same. At present, (at least, at the time when I was there, I might have said at present,) the sides of the crater are in most parts nearly perpendicular, the circumference of the bottom is an oval, from a number of fissures and apertures sulphureous fumes issue, and from others streams of wind with a hissing sound. The bottom likewise shews evidently that it is a dangerous and a false bottom, by shaking and sounding when walked over. The cavern excavated in the sides of the crater, and described by the above-cited traveller, also still exists, and from it a cloud of sulphureous fumes continues to exhale; and had not M. de Luc been fearful of prosecuting his researches, it is more than probable, that he would have found it abounding with sulphur and various salts, as it is at present.

The differences, therefore, between the state of the crater at the time it was entered by M. de Luc and at present are reduced to these; first, that the narrow passage by which he reached the bottom now no longer exists; but that, on the other hand, the sides on the south-east are become less steep, and afford a way to descend into that gulph: secondly, that the height of the crater is now much greater than it was then, as I found it to exceed a quarter of a mile, whereas when M. de Luc was there it was not more than two hundred feet: lastly, that the furnace below the bottom burns much more violently at present, as may be inferred from the intense and almost intolerable heat I felt when I was there, which circumstance, had it existed when M. de Luc made his observations, he certainly would not have failed to have mentioned.

I do not mean to say by this that the subterranean conflagration of the island is now more active or energetic; since it appears that the extreme heat, though not then felt within the crater, manifested itself without, and even in the sea itself, which, as has been observed, smoked in several places near the shore, and was so hot that the fish all died; circumstances which did not exist when I visited the island.

M. Dolomieu, who was there seven years before me, could not go down into the crater, because the narrow passage by which M. de Luc entered no longer existed, and the sides were too steep to admit of any descent. The volcanic mouth, however, was then in the same situation, was large, of an oval form, and emitted, in a great number of places, sulphureous acid and suffocating fumes.

Yet within this short interval, very considerable changes have taken place. The depth of the crater, as far as my judgment could be formed by the eye, was then about a mile, the larger diameter of its mouth was half a mile, and that of its bottom about fifty paces. Whence it appears that the bottom, since that time, must have been greatly raised, and likewise have become narrower, while the mouth has been considerably enlarged. From the edge of the crater, he threw into it large stones, which, when they reached the bottom, he perceived sank in some fluid, that could not be aqueous, since it must have been soon evaporated by the excessive heat, but which he judged to be melted sulphur; as he in fact saw that substance trickle down the sides against which it had sublimed. With a good telescope he could discover at the bottom two small pools, which he supposed to be full of the same combustible matter. He likewise observed that the sulphureous fumes which in the day time appeared white, were by night resplendent but placid flames that rose above the mountain, and diffused their light to some distance.

When I made my observations at the bottom of the crater, though the sulphur flowed in many parts of the cavern, as I have already said, yet it did not stagnate in small pools or pits at the bottom; nor did the sulphureous flames arise by night more than some feet from the bottom.

The changes which have taken place in the internal parts of this volcano, since it was visited by the French naturalist, have probably originated from some later eruption; since it is to that cause that changes of any moment in volcanic craters are usually to be attributed. And in fact, according to the unanimous testimony of the inhabitants of Lipari, it suffered a very violent commotion in the month of March 1786. After subterraneous thunders and roarings, which were heard over all the islands, and which in Vulcano were accompanied with frequent concussions and violent shocks, the crater threw out a prodigious quantity of sand mixed with immense volumes of smoke and fire. This eruption continued fifteen days; and so great was the quantity of sand ejected, that the circumjacent places were entirely covered with it to a considerable height; and, at a small distance from the crater, to the east, there is still an eminence, of a conical form, half a mile in circumference, consisting wholly of this pulverised substance, and, as I was assured, entirely produced at this time. The aperture that must then have been made in the bottom of the crater to discharge such a quantity of matter, and the accumulations of that matter in various places, must necessarily have caused great changes around and within the crater; one of which, without doubt, is the declivity produced in the southern sides, in consequence of which it is now possible to descend to the bottom of the gulph; for we find that this long descent is entirely composed of sand.

No lava flowed in this eruption, at least not over the edges of the crater. With respect to the lava of a vitreous nature which is found on the surface on the northern side of the mountain, and of which we have already spoken, M. Dolomieu observed that it existed

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by the quality and quantity of the dust that rises in the smoke, and renders it sometimes of an ash-grey colour, sometimes perfectly white, sometimes of a colour approaching to black, and sometimes entirely black.

“The following are the observations I have made on this subject. When the wind is about to change to the sirocco or south-east, or the east-south-east, or south-south-east, the smoke rises so dense and black, in so great a quantity and to such a height, and afterwards dissipates in so black a dust as to strike the beholder with a kind of awe; and at the same time so loud a roaring is heard, frequently accompanied with a shaking of the earth, as to inspire with dread even those long accustomed to these roarings and shocks. But when the wind is on the point of changing to the north-north-east or north-north-west, the smoke rises more slowly, is less dense, and entirely white; and when it is dissipated, the dust which falls is extremely white. No such loud noise is then heard, nor any shock felt; at least I observed none, nor can the oldest inhabitant of this island remember to have felt any. When it is about to change to the east or east-north-east, an explosion is heard in the body of the mountain, which soon after throws out a little smoke of a grey colour, of which colour are likewise the ashes that fall when the cloud is dispersed. The mountain in the mean time explodes and roars so violently at intervals, that we frequently dread the shock of an earthquake. Lastly, previous to a change of the wind to the west, the west-south-west, or west-north-west, vast volumes of smoke arise, of a dark ash-grey, approaching the colour of lead, and so thick that when they disperse they occasion a continued shower of ashes.”

On these observations of the Liparese meteorologist, Signor Paparcuri proceeds to philosophize, whether pertinently or not I shall not enquire.

I should think myself justly to incur the imputation of rashness, should I venture absolutely to deny these facts, without having sufficient reasons so to do; especially as they are so precise, so circumstantial, and said to have been observed upon the spot. It besides does not appear credible that the Abbate Rossi would have published these observations, had they been merely the fabrications of his invention, in a place where he was liable to be disgraced by the contradiction of all his countrymen. I must however say, with philosophic candour, that during my stay of several weeks at Lipari, where I continually had Vulcano before my eyes, the principal winds mentioned in this extract blew, and particularly the south-east, the west, and the south-west; but I never observed, either before they began, or while they continued to blow, any shakings of the earth, or roarings, lofty columns of smoke, or showers of ashes. Once only, when a violent south-west wind was on the decline, the column of smoke which issued from the cavern of Vulcano increased prodigiously, and, from the resistance of the agitated atmospheric air, made some spiry windings; but when it had risen some poles above the upper edge of the crater, it began to grow thinner, and soon after entirely vanished. Though the wind ceased to blow, this prodigious cloud of smoke still continued to rise for several hours. I must add, that I once remarked the smoke of Vulcano to be extremely thin, and little in quantity, when a strong west wind blew; and that twice, when the air was perfectly calm, I observed the smoke extremely copious and rising to a great height. To conclude, after carefully noticing day by day every change that took place in the phenomena exhibited by Vulcano, during my stay in its vicinity, I could perceive none which afforded support to these famous prognostics. I likewise enquired of the sailors of Lipari, and frequently brought them to confess that the fact did not accord with their assertions. But, besides that they did not agree among themselves, they endeavoured to evade conviction by all those excuses and pretences which I have observed sea-faring people never to omit, to support their particular prejudices relative to the signs of good or bad weather;

in consequence of which, they sometimes become the victims of their own credulity by suffering shipwreck.

I am not, however, so positive as to deny the whole of these observations. To know with certainty whether any direct relations exist between the various symptoms of Vulcano and the changes of the atmosphere, it would be necessary to reside for some years in that island, a place truly wild and desolate; and he who, like Empedocles at Etna, should go to erect his dwelling there, in order to observe the changes of the mountain, would have no other companions than the rabbits which make their burrows on the southern side of the island.

Disregarding, however, at present the pretended relations, observed by Signor Rossi, between Vulcano and the winds; if the accounts of the eruptions which then from time to time issued from its crater may be relied on, we must own that at that period the convulsions of this mountain were much more violent and frequent than they are at present: a fact which accords with the observations of M. d'Orville and Father Bartoli.

Before I conclude my remarks on Vulcano, two things remain for me to notice, agreeably to the plan I have followed relatively to the other Eolian isles. First, to specify the results obtained by our common fires in those kinds of rock which, liquefied by subterranean conflagrations, have given birth to the island; and, secondly, to mention the notices left us by the ancient writers relative to Vulcano. The former object of enquiry has been sufficiently discussed, while treating of Stromboli, where we have detailed the changes undergone in the furnace by porphyritic rocks; since, as has been already shewn, rocks of a similar kind have furnished the materials of which Vulcano is composed. We have therefore only to treat of the latter of these subjects.

We are indebted to Thucydides for the first account we have of this island. He relates in his history, that in his time Vulcano threw out a considerable flame by night, and smoke by day*.

Aristotle, in his Treatise concerning Meteors, describes an ancient eruption of Vulcano, a part of which swelled and rose, with great noise, into a hill; which bursting, a violent wind issued forth, together with fire, and so great a quantity of ashes as entirely to cover the neighbouring city of Lipari, and extend to several of the towns of Italy. This eruption was still visible in his time†.

The interesting observations of Polybius relative to the number, size, and figure of the craters of Vulcano, are likewise particularly deserving our notice. In his time there were three; two tolerably well preserved, and one in part fallen in. The mouth of the larger, which was round, was about five stadia, or five-eighths of an Italian mile, in circuit. This crater towards the bottom grew gradually less, till at last it was only fifty feet in diameter; this part was one stadium above the level of the sea. The form of the other two craters was the same‡.

Such is the account of Polybius, as quoted by Strabo, who himself tells us of three openings or craters at Vulcano, from which flames issued, and ignited matters were thrown out, that filled up a part of the sea of considerable extent§.

* Την νύκτα φαινεται πῦρ αναδιδήναι (Ίσρα) πολὺ καὶ τὴν ἡμέραν καπνόν.

† Ἐν Ἱερῷ ἔστιν αὖτε τὸ γῆρας, καὶ αὖτε οὖν λοφωδὴ οἶκος μετὰ φοβῇ τελοῦ; δι' ἡμετέρας, ἔξελθε πνεῦμα πολὺ, καὶ τοὶ σὺν αὐτῷ καὶ τὴν τρεῖς ἀνιέρχονται, καὶ τὴν Λιπαρίων πόλιν, ὅταν ἡ πόλις πᾶσαν κατετίφρωσι, καὶ ὡς νῦν τὴν Ἱταλίαν πολλὰν ἔλθε Lib. ii. cap. 8.

‡ Πολύβιος δὲ τῶν τριῶν κρατῆρων τοὶ μὲν κατεφύρηνται φησὶν ἐκ μερὸς, τῆς δὲ συμμενῆν, τοὶ δὲ μέγιστον το χείλος ἔχουσιν, περιφέρει οὖν, πνίτε σταδίων κατ' ὀλίγον δὲ συναγείσθαι εἰς ἑὸν δὲ διαμέτρος κατ' ἑ βάρη; εἰναι τὸ μέχρι θαλάσσης σταδίων. Strab. lib. iv.

§ Ἐχουσιν δὲ ἀναπνοὰς τρεῖς, ὡς ἀν' ἐκ τριῶν κρατῆρων. ἐκ δὲ τῶν μεγίστων καὶ μνῆρας αἱ φλόγες ἀναφύονται, οἱ πρόσκιχνασθαι πᾶν πολὺ μέρος τῆς πόρος. Strab. lib. vi.

From the two latter passages we learn, therefore, that anciently there were in Vulcano three burning mouths, or more properly craters, and that one of them was very large. Are we to conclude that this larger crater was the same that at present exists, and which since that time may have increased its dimensions? This may possibly be the truth; and it may perhaps be equally so, that of the three craters mentioned by Polybius and Strabo, two still remained in the time of d'Orville, who found a double burning crater at Vulcano, though at present there is only one; the other two no longer appearing, either because they have fallen in, or been filled with earth by the rains, or possibly have been covered by subsequent ejections.

From the text of Strabo it may be inferred, that in his time Vulcano ejected lava, since the burning matter thrown out filled up a part of the sea of considerable extent.

Callias, in his Life of Agathocles Tyrant of Syracuse, relates that on a lofty eminence of Vulcano there were two craters, one of which was three stadia in circumference, casting a great light to a vast distance; and that from this mouth burning stones, of a prodigious size, were thrown out with so great a noise that it might be heard to the distance of five hundred stadia*.

If, therefore, we believe the testimony of Diodorus and Fazello, who, as natives of Sicily, have the best claim to our attention, we have already seen, when treating of Stromboli, that the former asserts that both that island and Vulcano threw out sands and burning stones; and we learn from the latter, that Vulcano was in a continual state of conflagration; and that from its gulph, which lay in the middle of the island, a cloud of thick smoke continually issued; while through the fissures of the stones, and narrow apertures, a pale flame arose in the midst of the dark cloud†.

Cluverius likewise affirms, that from the neighbouring shore of Sicily he had himself observed by night a similar fire amid the dark smoke‡.

And here it is proper, with Cluverius, to correct a mistake of Fazello, who, relying on the authority of some superficial writer, has been induced to believe that the island of Vulcano emerged from the sea in the year of Rome 550, without reflecting that, two hundred years before that period, it is mentioned by Thucydides, and that Aristotle, about a century after him, had described one of its eruptions. The mistake has been occasioned by the origin of Vulcanello, which about this time arose out of the water. Pliny has remarked that when this island was thrown up, a great number of fish were found dead, and caused the death of those who ate of them.

The same Fazello relates, that Vulcano was separated from Vulcanello by a narrow channel of the sea, in which ships might lie with safety; and that this strait was open in his time, but afterwards filled up by new eruptions of Vulcano§.

The brief statement of facts recorded by history, when compared with the observations of Bartoli, d'Orville, De Luc, Dolomieu, and myself, clearly proves that this island

* Ιστοριῇ Καλλιᾶς, ἐν δεκάτῃ τῶν περὶ Ἀγαθοκλεῖα, ἀναγινώσκοντες εἶναι καὶ λόγον ὑψέλλον, ἐφ' ᾧ κρατῆρες; πρὸς δύο, ὡς ὁ ἴτερος ἐστὶ τῶν περιμετρῶν τρισταδίων, ἐξ ἧς πολὺν φεγγῶς, ὥστε ἐπὶ πολὺν τόπον ὀφθαλμοῖς φωτισμοῖν ἵκνεται ἐκ τῆς χάσματος ἀναφύοντος. Καταρρεῖ λίθων ἀπαισιόμηχθις καὶ τετακκυγὸς βροχὸς γίνεσθαι, ὥστε ἐπὶ πεντακυσία στάδια ἀκισθῆναι τὸν ἥχον. Scholiast. in Apollon. Argonaut. lib. iii.

† Hæc (Vulcani Insula) in medio mari aquis circumfusa perpetuo ardet. Enimvero ex voragine, quæ in medio patet, jugiter ingentem fumi nebulam hodie eruat. Intus vero per juncturas lapidum, et cancellorum, angustosque meatus exurens, simul, et pallens ignis inter ipsam fumosam caliginem emittitur. Histor. lib. i.

‡ Hujusmodi inter fumosam caliginem pallentem ignem egomet nocte e proximo littore Siculo despecti.— Ubi sup.

§ Vulcanellus tenuissimo Euripo a Vulcania (Insula) recedit. . . . Euripus ad ætatem usque meam pervius, ac sicut navigiis statio, nunc, interjecta ex Vulcaniæ caminis cinerum ac lapidum mole, præclusus est.— Ubi sup.

is a volcano which may be compared to Vesuvius or Etna, with respect to the changes in its craters, the variety of its eruptions, and its longer or shorter intervals of repose; except that, from the want of aliment for its fires, its ejections are less frequent and less copious.

From the authorities above adduced, we perceive that the fires of this mountain are very ancient, since they burned in the age when Thucydides flourished, or 475 years before the Christian era. This island was then called *Hiera* ('Ιερα), or the sacred isle, as being sacred to Vulcan; for the inhabitants of the neighbouring islands, as Thucydides informs us, perceiving it continually to flame by night, and smoke by day, believed it was the residence and forge of that god *. It is however extremely probable, that these volcanic conflagrations are much more ancient than this period; as is the island where they are produced, which no doubt derived its origin from fire, though its formation is concealed amid the darkness of the most remote ages.

The accounts here given of the present state of Vulcano, clearly shew the mistake of Sir William Hamilton, who compares it to Solfatara near Naples; a mistake occasioned by his not having visited the island.

We have spoken above of the opinion of many of the natives of Lipari, that it is possible to foretell with certainty what winds will blow, from the different appearances of the smoke of Vulcano. I find that the ancients likewise boasted the knowledge of the same prognostics. They inform us that before a south wind blew, the island of Vulcano was enveloped in a dark cloud, so that Sicily could not be seen; and that when a north wind was to be expected, a pure flame rose high above the crater, and the roarings were more violent; while a kind of I know not what middle symptoms preceded the zephyr or west wind. The various sounds of the explosions likewise, and the different places where the eruptions began, the flames, and the smoke, were all prognostics of the wind which should blow after the third day. Such is the account of Polybius, who has been copied by all the writers who have succeeded him †.

These prognostics, however, which the Greek historian probably received from the mariners, accord but little with those of Signor Roffi above cited, and still less with the phenomena observable in Vulcano at present; either because such indicatory signs can no longer take place, now that the volcano is in a comparative state of tranquillity; or because these boasted predictions originated more in exaggeration and credulity than the faithful testimony of the senses.

* Νομίζουσι δὲ ὡς ἐκείνη ἀνθρώπων, ἐν τῇ Ἱερᾷ δὲ ὁ Ἡφαίστος χαλκίζειν. Thucyd. ubi sup.

† Ἐάν μιν ἐν ἰσοῖς μέλλῃ πλῆν, ἀχλὺν οὐμχλῶδη καὶ ἀρχισθῆναι κυκλῶ φησι τῆς νηΐδος, ὡς μὴδὲ τῆς Σικελίας ἀπὸ τοῦ φαίνεσθαι. ὅταν δὲ βορρῆς, φλογα καθαρὰς ἀπὸ τοῦ λεχθίντος κρατῆρος; ἐκ ὧσιν ἐξαιρῆσθαι, καὶ βόρρῃς ἐκτε μπισθῆναι μίξῃς. Τὸν δὲ ζέφυρον μιστὴν τίνα ἔχειν ταῖς. ἐκ τῆς δὲ τῆς διαφόρας; τὸν βόρραν, καὶ ἐκ τῆς ποδὲν ἀρχεται τὰ ἀναφυσηματα, καὶ αἱ φλογες; καὶ αἱ λήγνεις; προσημαιοῦσθαι καὶ τοῖς ὡς ἡμέραις τρίτον πάλιν μέλλουσα ἀνεμὸν πλῆν. Polyb. ap. Strab. lib. vi.

CHAP. XV.—LIPARI.

PART THE FIRST.

OBSERVATIONS MADE ROUND THE SHORES OF THE ISLAND.

Unavoidable delays in making the circuit of the island.—The city of Lipari and its harbour.—Immense rock of lava and glass on which the castle of Lipari is founded.—Reasons for believing that the internal part of this rock is a true glass.—Other proofs of the ancient existence of fire in that place, derived from the pumices of the same rock.—Our common fire acts on volcanic glasses differently from the subterranean fires.—Other observations made within the harbour.—Porphyritic lava of a beautiful red found in its vicinity.—The author leaves the harbour, and makes the circuit of the island, proceeding towards the North.—The enormous breaches made by the sea in the shores of the Eolian islands extremely favourable to the discovery of volcanic products.—Another red porphyritic lava.—Extraordinary course of another lava.—The Campo Bianco (White Field), so called from the white pumices of which it is an entire mountain.—Their different species described in detail.—Analysis of these and other kinds of pumices in the humid way.—Discussion of the different opinions relative to this kind of volcanic products.—The Monte della Castagna composed of vitrifications and enamels.—Properties of these.—Capillary vitrifications.—Others which may be considered as in a state of transition from pumice to glass.—Not probable that the glass passes into pumice, as some have believed.—Resemblance and difference of these two substances.—Enumeration of some other kinds of glasses, one of which greatly resembles what is called the Iceland agate, or gallinaceous stone of Peru.—Glassy lavas of the Monte della Castagna.—This mountain and Campo Bianco, with their environs, form a vitrified mass eight miles in circuit.—This vitrification more extensive in ancient times.—No characteristic sign of the existence of the ancient volcanos on the sides of this mountain.—Indubitable proofs, however, that some of the above-mentioned vitreous substances have flowed, and others been thrown up, from volcanic gulphs.—Felspars and petrosilex commonly the base of these vitrifications.—Question, whether the vitreous parts, incorporated with or continued through the different lavas, owe their origin to a more vehement action of the fire, or to their being more easily vitrifiable.—Singular phenomenon relative to this subj. &c.—Universal sterility of this extensive vitrified tract.—Uncertainty of the rule which estimates the dates of lavas from their being more or less converted into vegetable earth.—Multiplicity of lavas decomposed by sulphureous acids, and variously coloured by the oxyde of iron, found beyond the Monte della Castagna.—Decompositions of other lavas, occasioned by the same acids, and other enamels and pumices found on the shores of the island.—Extremely minute shoerls, and beautiful quartzose crystals, and chalcedonies, originating from filtration, in some decomposed lavas.—Two large rocks in the narrow channel which divides Lipari from Vulcano.—This channel in ancient times must have been narrower than at present.—Conjecture that it once did not exist, and, consequently, that these two islands formed but one.—Figure of the Monte della Guardia seen from the sea—Its rocks of lavas, pumices, and vitrifications.—Prodigious quantity of vitreous eruptions which compose this mountain.

THIS island, from its extent, the city which renders it illustrious, the number of its inhabitants, its commerce and agriculture, claims pre-eminence above all the others by which

which it is surrounded, and which from it derive the name of the Lipari islands. Nor is it less important in the estimation of the naturalist, from the quantity, variety and unusual beauty of the volcanic products it contains. Mr Dolomieu, during the four days he remained here, gathered as ample a harvest as within so short a time could be expected from the most discerning and indefatigable lithologist; but it is easy to conceive that he must still leave much to be discovered in an island nineteen miles in circuit. During the eighteen days that I remained there, I may say that the sickle was never out of my hand; yet I will freely confess that I left behind me many a handful, which I would willingly have gathered, had this volcanic island been less distant from my home.

For the sake of order in my account of the observations I made in this island, I shall first state those which occurred to me in making its circuit, and examining its shores; and next, those I made in its interior, and in ascending its mountains. My remarks will thus, naturally, be divided into two parts.

PART THE FIRST.

Observations made round the shores of Lipari.

IN making this circuit, that I might perform it completely, I employed more time than I had imagined it could require. Besides the time necessary for remaining with the boat at a little distance from the shore to observe the different courses taken by the volcanic matters, in their way to the sea, when liquified by the power of the fire; besides that consumed in landing to examine these matters more nearly, and breaking them to pieces with suitable instruments, that I might collect and preserve them; lastly, besides the time requisite to ascend or rather to climb up, steep rocks, cliffs, and precipices, which rose from the waves, at the termination of the course of the eruptions; I was not a little delayed by the obstacles which continually opposed the execution of my design. How often, when I attempted to prosecute my intended circuit while the sea was calm and smooth as the most placid lake, have I been obliged to desist, and return with my boat, by a wind suddenly rising, either contrary, or blowing in upon the land, so as to expose me to the danger of being driven upon the shore, and shipwrecked on the rocks! Frequently, though the sea was sufficiently calm for a considerable distance, yet, where the coast broke off, or sunk in I found it running high, from the remains of a storm that had not long ceased, or, as it is termed, an old sea, which my boat was unable to encounter without great danger. Every one who is acquainted with the sea that surrounds the Eolian isles, knows how liable it is to sudden tempests.

The city of Lipari extends along the shore in the form of an amphitheatre. Behind it rise a chain of mountains; and in front is its harbour, formed by the hollowing in of the sea, which here divides the shore. I omit to mention another very small harbour to the south, only fit for the reception of such vessels as may be drawn up on shore.

I began my researches in the harbour itself, under the castle of the city, which is erected on an immense rock of lava, that rises perpendicularly from the water, and is entirely destitute of all vegetation except a few stalks of the Indian fig*, which grow in its fissures.

This lava has for its base felspar, is of a fine and compact grain, of a scaly fracture, dry to the touch, and gives sparks, like flint, with steel. It is of a cinereous colour, in many places approaching to that of lead. It is full of an immense quantity of small extraneous bodies, which would be with difficulty distinguished from the substance of the

* Cactus Opuntia. Lin.

lava on account of their resemblance in colour, were they not little globes. This lava is joined to large masses of glass, which form a whole with it, without any divisions or separations in the middle. It therefore is the same lava, which in some places retains its nature, and in others is transmuted to glass. This glass in some parts contains the small extraneous bodies before mentioned, but in others it is pure glass. In general it is extremely compact, of a dull black colour, and fractures rather in irregular pieces than in waving streaks, as is usual with glass. It has besides a kind of unctuousity to the touch, and even apparent to the eye, which is not observable in any other of the most perfect volcanic glasses. Like the lava it gives sparks with steel; but the lava is entirely opaque, whereas the glass in the angles and thinner edges, has a considerable degree of transparency. It only appears opaque where it contains the minute globes, which are particles of the lava. Though the lava in the fractures has not the lustre of the glass of which it is a continuation, yet when cut and polished, it is not in the least inferior to it in that respect. I possess several pieces, cut and polished, which are half glass and half lava, and of which the different colours form an excellent contrast.

An observation which I made relative to this kind of glass appears to me too important to be omitted.

If we take a piece of this glass, six or seven feet in length, and four or five thick, and attentively examine it, we shall discover that it is marked with small grey veins parallel to each other, which give it the appearance of being divided into strata or flakes; and if the point of a large pickaxe be struck by a powerful arm into one of these veins, and used as a lever, the whole mass will split into two parts, from one end to the other, following the course of the vein; and with equal facility, by proceeding in the same manner, may new divisions of the glass be obtained in the other veins, till the whole piece is divided into a number of plates proportionate to the number of veins: but if we attempt to divide them in any other part but the vein, they only break into small irregular fragments.

When we examine the face of one of the plates thus divided, we perceive that every vein consists of a thin leaf of earthy and scoriaceous particles, which prevents the vitreous strata from perfectly uniting. The direction of these veins, which intersect the glass transversely, is generally from above to below; and it appears evident to me, that the plates or sections of glass interposed between the veins have been produced by as many different flowings of the fluid matter. The formation of the earthy veins I conceive to have been as follows: the first stream, that is to say the lowest of all, containing lighter and less fusible particles than the remainder of the liquefied vitreous matter, these floated on the top; and the glassy current, cooling, produced, or rather left on the surface, a first pulverous coating, which prevented the perfect union of the second current that succeeded the first; and this second, containing similar subtile matters, prevented in like manner the full adhesion of the third, and so of the rest. Thus have successive flowings of the liquid matter produced the masses of glass we now see, exhibiting those apparent veins, in which they may be so easily split. But as we shall have occasion to speak of other glasses, in another place, we shall then have an opportunity to resume the subject of this peculiar texture.

Such were the observations I made on that rock, and some fragments which had fallen down from it on the shore; since, though it is composed of hard lava and glass, yet from the numerous fissures in it, caused by congelation, it has sustained many losses. In fact there is danger that it may become so entirely ruinous as to occasion its fall, together with that of the castle it supports.

I cannot

I cannot dismiss this subject without mentioning certain circumstances which induce me to believe that the inside of this rock is one prodigious mass of glass. The waves of the sea, by incessantly beating against it, have corroded it in several places, but especially towards the middle, where they have formed a spacious cavern; which, as the lower part of it is covered with water, I entered in my boat, and found that the sides were real and solid glass.

In other places, against which the sea has dashed, and more or less broken the rock, the same vitreous substance is apparent. If we ascend from the shore to the castle, in more than one place near the road, which lies over lava, we find volcanic glass. In the small square, near the house of the commandant, we find it rising above the ground in large pieces resembling steps. Great masses of it likewise project from the ground within the city, in two places of which, having caused the earth to be dug into, I found the same glass.

All these facts and observations appear to me sufficiently to support my opinion, which, as I have said, is, that the inside of this vast rock is entirely of glass. We perceive therefore that though on making the circuit of the other parts of the island, we should not be able satisfactorily to ascertain its nature, these facts alone would be more than sufficient to prove it volcanic; and an intelligent though indolent traveller, who on arriving at Lipari should only take the trouble to go over the city, would perceive, in a few hours, what in many other countries, once subjected to the action of fire, he would not be able to discover in a much greater number of days.

But the indubitable testimonies of the ancient existence of fire in this place do not conclude here. The vitreous substances are frequently accompanied by pumices which are, in fact, only an imperfect glass. If we view the steep masses of glass and lava, which rise perpendicularly from the sea, like a wall; we perceive that they are interspersed with different strata of pumice, from which, by the aid of a pole tipped with iron, small pieces may be broken off. On the shore, however, we do not find it in any great quantities.

This pumice is of two kinds, the one heavy and compact, the other light and porous, and both of a cinereous colour. The compactness of the former species, however, is not so great, but it may be broken into small pieces, and crumbled into powder between the fingers. It is dry and rough to the touch, is filamentous in many places, and crackles between the teeth; qualities appertaining to common pumices. Its structure is not every where filamentous, but in some places so fixed that its fibrous texture cannot be discerned. By the aid of the lens we perceive that it is of a vitreous nature, and discover an infinity of lucid points, which we might take for very minute felspars, did not a careful examination with a good magnifier shew them to be real particles of glass. It cannot be denied, that this pumice is of the same nature with the lava of the rock, since we see, in many places, the lava gradually lose its solidity and fineness of grain, and assume the characters of this species of pumice.

The other kind is rather scaly than filamentous, and its scales have a degree more of vitrification than the other; the confluence, likewise, of some of these scales has produced, in several places, small lumps of a black glass. It is, however, extremely light in consequence of the pores and vacuities with which it abounds. This pumice is usually a continuation of the other, and, in my opinion, derives its origin from the greater degree of heat which it has sustained.

After having examined, and attentively considered on the spot, this mixture of lava, glass, and pumice which forms the body of the rock it appears evident to me that there have been several currents that have flowed down the sides, and, perhaps, from the sum-

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mit, of the contiguous mountain della Guardia, into the sea, since the direction of their descent is found on that side, and even the filaments of the pumices point towards that mountain.

If we except those minute globules, which appear to me to be portions of lava, this lava, glass and pumice, exhibit neither felspars, shoerls, nor any other extraneous body; either because these have been melted by the fire, or, perhaps, because they never existed in them. But in what manner this fire must have acted in fusing those masses of felspar of which the rock that supports the castle of Lipari is formed, so that this stone should now have remained a simple lava, and now have passed into the state of glass or pumice, shall be considered in another place; at present I shall proceed to state other facts analogous to the same subject.

The lava and glass of the rock, when exposed to the furnace in separate crucibles, fused into a light grey glass, the globules which before appeared in them melting at the same time. This glass is incredibly porous. Though the crucible in which these substances were fused was only filled to one quarter part of its contents, they swelled so much when in a state of liquefaction, that they rose several lines above the edges of the crucible, and flowed over, down its side.

The two kinds of pumice, though both derive their origin from the same felspar, which is the base both of the lava and the glass, afford different results in the same fire; since their volume instead of augmenting is diminished, only retaining its former colour.

The tumefaction or inflation of this glass may, perhaps, excite some surprise; since it implies a prodigious quantity of gaseous bubbles contained within it; whereas nothing of the kind is observable in it, when it is acted on by the fire. But we shall see hereafter that this is an appearance common to almost all glasses and compact volcanic enamels, and which I shall consider when I come to speak of the nature of the gaseous substances that frequently tumefy more or less different volcanic products: at present my object is only to state and compare facts. I shall only say that I have never met with any thing similar in the re-fusion, not only of common factitious glass, but even of that which is sometimes produced in the furnaces for baking bricks and tiles. A few years ago a large piece of glass was put into my hands which was said to be volcanic, but of which I entertained doubts, since, though in its great weight and hardness it resembled the volcanic glasses, it differed from them in certain spots and bluish streaks, and in a kind of little stars which seemed to indicate a principle of crystallization in this glass; neither of which appearances I ever observed in the glasses of volcanos; and on a careful examination, to discover with certainty its origin, I found that this glass had been brought from a tile-kiln. When re-melted in a glass furnace it retained its former solidity and compactness, without exhibiting the smallest pore or bubble; and instead of swelling in the crucible, and assuming a convex superficies, it sunk, and acquired a concave one. I have observed the same in two other similar glasses.

The haven of Lipari forms a curve in the shore, which to the south begins at the foot of the Monte Capicello, and ends to the north-east at the bottom of the Monte della Rosa. After having therefore examined that part of the shore which is contiguous to the harbour, lying under the castle, and on the right side of Monte Capicello, I made the circuit of the remainder of that curve to the base of Monte della Rosa. The objects which here attracted my notice were first a tufa above a lava, which the industry of the inhabitants had converted into a soil suitable to small vineyards; and next a mass of crags and precipices, partly fallen into the sea, and partly threatening to fall, among which, besides scorix of an iron colour, we meet with beautiful volcanic breccias of a lava of a petrosiliceous base, and containing small particles of glass and pumice.

I cannot

I cannot think of this place without shuddering at the dreadful danger to which I should have been exposed had I visited it two days later. I was there on the 21st of September, and examined the breccias which had fallen down on the shore, and those, much more numerous, and more deserving attention, which remained still attached to the rugged declivity that descends into the sea. On the 23d in the afternoon, almost the whole of this declivity fell down with a dreadful crash. I was at that time taking my afternoon's nap in the house which had been politely appointed for my reception by the Consul of Lipari, and is situated on the shore of the harbour. The noise immediately waked me, and at first I could not tell whether it was a violent clap of thunder, an earthquake, or the roaring of the waves in a tempest. I ran to the window, and perceived that it came from the declivity I have described, but could discern nothing but an immense cloud of dust by which it was covered. The noise lasted, perhaps, five minutes; and when the cloud of dust had somewhat dispersed, I perceived it was occasioned by a prodigious quantity of stones that had fallen down into the sea, and that a great number continued still falling.

Two sensations, on this occasion, most powerfully affected my mind; the one of shuddering and horror on reflecting that my destruction must have been inevitable had I postponed my visit to this place two days and a half, and the other of satisfaction and joy at my fortunate escape.

The fall of so great a quantity of stones, produced a large longitudinal furrow in the declivity, and a small indentation in the sea. The next day I procured several of these stones, and found that they were pieces of lava, partly of the horn-stone base, and partly of that of felspar. The latter had a fine grain, and some transparency when in thin pieces; the former were of a coarser grain, and opaque. When I went in the boat to examine the part of the mountain where these stones had fallen, I perceived that it was formed of loose volcanic stones, which were very liable to fall from the steepness of the declivity, and I judged them to be fragments of lava, detached by length of time, from a more elevated rock, and afterwards accumulated below, at a little distance from the sea.

Having arrived at the foot of the Monte della Rosa, where, as I have said, the harbour of Lipari ends, I perceived on the shore a stone, which, from its singularity, drew my attention. It forms a rock that in part rises above the sea, and in part is concealed by the water. There are also several detached pieces of it which have been made round by the action of the waves. I, at first, took it for a jasper. Its ground was of a blood-red colour; it gave sparks strongly with steel, was of a rather fine grain, and had almost the hardness of quartz. When I first saw it, it reminded me of the jasper I had observed and collected at Schemnitz in Lower Hungary, under the hill Calvario, and of which some specimens are preserved in the Imperial museum, it appearing to me that these two stones were extremely similar; but on a more attentive examination, I perceived that this stone was not simple like the jasper, but of a compound formation, containing in it reddish scales of felspar, and thorls, which gave it the character of that kind of porphyry which has for its base a hard horn-stone. But is this porphyry in a natural state, or in that of lava? Lavas of a red, and a bright red, colour, I confess, I had never before seen, nor do I know that they have been observed by any other naturalist; and I therefore doubt whether the detached red porphyry I found at Stromboli had ever suffered the action of the fire. It is true that many lavas near the shores of Lipari and elsewhere have this colour, as we shall see in the following chapter; but this arises from the decomposition they have suffered by the force of sulphureous acids, and the action of iron: and I shall there shew that the red colour (and the same may be

said of the white, green, and other colours) has only penetrated as far as the action of these acids, and, consequently, the decomposition, has extended; but where the lava remains untouched by them, it still retains its natural colour, that is, either a grey or the colour of lead or iron, but without any mixture of red. We do not, however, discover any traces of decomposition in the production of which I now speak. After the most careful examination, I cannot exclude it from the number of true and real lavas; though, on the other hand, I am unable to affirm that its redness is an effect of calcination, as is the case in other lavas, since of this it does not exhibit the slightest indication. We must here, therefore, have recourse to one of those limitations which experience has obliged us to admit in many other rules of philosophy, which were at first thought to be absolutely general, but afterwards found to be subject to more than one exception. The reasons of fact on which I found my assertion, that this porphyritic rock has passed into the state of lava, are two: the great number of minute cells it contains in many parts of it, and the direction of those cells. Where local circumstances are insufficient to determine, the compact lavas rarely leave the enquirer in doubt whether they derive their origin from fire, as the fire has not so changed them as to destroy the characters of the stone from which they were produced. But it is not the same with the cellular, since it is known that their configuration can only be the effect of æriform fluids, put in motion by the action of the fire. This cellular conformation is found in the present stone. The cells in many large pieces are so numerous, as to occupy nearly one half of the volume of the stone. The largest are about five lines, and the smallest a quarter of a line; but between these two extremes there are an infinity of intermediary sizes. It is worthy of remark, that these cells are not only superficial, but extend into the internal part of the mass, as is seen in fractures two or three feet in depth, which may serve to obviate the objection that even stones not of volcanic origin are sometimes cellular, since it is known that their cells or minute cavities are merely superficial, and originate from the corrosion of some of their external parts, by the filtration of the rain-water. This proof is supported by another still stronger, taken from the direction of the cells, which is the same in all, as well in the pieces detached from the rock, and deprived of their sharp edges by the waves, as in the rock itself. This direction is every where found to be from the Monte della Rosa to the sea, as they form ellipses more or less acute, the greater diameters of which are invariably in that position, and this greater diameter is frequently twice or three times the length of the less. This stone, therefore, is not only a true porphyritic lava, but it is evident that it once flowed from the mountain above mentioned to the sea, and in its motion the naturally circular figure of its pores or cells was changed into an oval. I have almost always observed the same appearance, on a smaller scale, in re-melted lavas, and glasses. As long as the matter in fusion remains within the crucible; the bubbles are orbicular, but become elliptical in that part of it which overflowing the edges runs down the side of the crucible; and the greater diameter of these ellipses is generally in the direction of that side.

All the pieces of this kind of lava are not, however, of a blood-red colour; some of them are of a duller red, though the component principles of both are essentially the same.

This lava, when fused in the furnace, doubled its volume, and its upper part assumed a vitreous convexity, which was smooth, shining, semi-transparent, and of a greenish tincture; but internally it was a very black vitreous scoria, extremely porous, and sufficiently hard to give sparks with steel.

With these observations on this uncommon species of lava, I shall conclude the account of my tour round the harbour of Lipari, which may extend about two miles.

According to my proposed plan, I was now to proceed to make the circuit of the island, which I did, taking my departure immediately from the foot of Monte della Rosa, and proceeding towards the north.

At the distance of somewhat more than three hundred feet a lofty rock rises from the sea of a horrid and dreadful aspect, formed of large plates of stone, feebly supported by projecting points, and appearing to hang in the air, and threatening to fall, as many have already, the fragments of which are seen on the shore. I must candidly confess, that, after the fall of the rock I have already mentioned, I approached this with no small dread. My ardour to make some new discoveries, however, triumphed; and, as I was afterwards frequently obliged to risk myself in similar situations, in order to examine accurately the shores of the island, I gradually acquired an habitual courage, and became almost incapable of any idea of danger. I hope I may be pardoned this little digression.

The Eolian isles, especially Lipari, Felicuda, and Alicuda, are, at their basis, more or less corroded by the sea, which, there, is so frequently in a state of violent agitation. The lower excavations cause the parts above them to give way, and, in a series of years, great masses fall into the sea. To this the nature of the lava, which is full of cracks and fissures, considerably contributes; not to mention the influence of the humidity of the atmosphere, and other destructive elements. Large heaps of these fragments, in consequence, accumulate on the shore, where they are dispersed by the waves, and make room for others, and thus a gradual diminution of the island takes place.

These corrosions of the water, these fissures, and fragments of the stones and rocks are, however, peculiarly interesting to the enquiring naturalist, who, though he may make important discoveries while traversing the summits and sides of volcanic regions, can never penetrate beyond the surface. The internal effects of the fire, the substances more or less modified by it, and sometimes prodigiously changed, even to the entire annihilation of the character of the original stone, and many other combinations produced in the subterranean recesses, by this ever active element, can only be known by incavations and fractures which exceed the strength of man to effect, but which, to a certain degree at least, are in many places produced by the sea. Of this we have already mentioned some instances, observed in making the circuit of the shores of the other islands, and shall adduce others in those which yet remain to be described; we have also a very remarkable example before us, in the half-destroyed rock of which we are now speaking.

Above, it is covered with a thick coating of earth, which prevents its true character from being visible; but on the shore it may be very distinctly seen, and appears to be formed of a lava, in thick strata, taking an oblique direction to the sea. This lava is likewise porphyritic, of a petrosiliceous base, containing crystallized felspars, and, like the other rock I have before mentioned, of a red, but rather a dull red colour. It is not in the least porous, but extremely compact and solid, and is consequently extremely heavy, and rather of a siliceous than earthy grain. It lies on the shore in large pieces; the solidity and beauty of which, when well polished, would render it a no less splendid ornament in buildings than the porphyries which are not volcanic.

The degree of heat which fuses the other porphyritic lava is only sufficient to soften the present, and make it take the shape of the inside of the crucible and adhere strongly to its sides. It then assumes a black colour, and loses its compactness, becomes filled with small round bubbles. In a more intense heat, it melts into an enamel, in like manner black and filled with bubbles: the felspars, however, remain untouched, as in the enamel produced from the other porphyritic lava.

Continuing my tour beyond the harbour and the porphyritic rock, I found the sea form a kind of bay within the land, round which a few cottages are built, affording shelter to a small number of inhabitants who live by the profits of a vineyard that but ill repays their labour. The name of this place is Canneto; and above it is a current of lava, of an argillaceous base, similar to that of the Arfo in Ischia *. This lava is not continued without interruption, but, like that of Ischia, broken, uneven, and here and there raised into a kind of little hills. Its external appearance is, on a larger scale, that of a field ploughed, with several furrows in an irregular direction, having great hillocks and deep intervals between them. I have observed this appearance in several other lava beside the present and that of the Arfo; and the cause of such a conformation may, it appears to me, be the following: It frequently happens that the lavas, when they flow, meet with impediments in their way which obstruct their course. When, therefore, such an obstacle occurs the stream must stop, or its motion become slower; but this not taking place in the parts behind, they continue to flow and increase the quantity of the lava which swells in that place, and, in consequence of its contact with the cold air, soon loses its fluidity, and is congealed into stone. The liquid lava, in the mean time, takes its course another way, if the obstacle is insurmountable; and if it meets with others, new stoppages or retardations are the consequence, producing other tumours; and thus the lava in many places becomes full of hillocks. It may likewise be, that the lavas flowing over places abounding with cavities, of which there are many in volcanic mountains, may partly sink into them, and thence afterwards rise somewhat above the former level, and thus produce the small elevations which are here observable.

I had now continued my tour, in the boat, till I approached Campo Bianco (the White Field), distant three miles from the haven of Lipari, and so called because it is a lofty and extensive mountain composed entirely of white pumices. When seen at a distance, it excites the idea that it is covered with snow from the summit to the foot. Almost all the pumices that are employed for various purposes in Europe are brought from this immense mine, and Italian, French, and other vessels continually repair hither to take in cargoes of this commodity: the captain of the ship which had brought me to Lipari, had sailed from Marseilles to carry back a freight of this merchandize. I was not, however, actuated merely by those motives of curiosity that might induce any traveller to visit this remarkable mountain; I proposed to examine it with the eye of a philosopher and a naturalist.

The pumice-stone, with respect to its origin, though universally admitted to be the product of fire, is one of those bodies which have divided the opinions of chemists and naturalists both ancient and modern. It may, in fact, be affirmed that it has given rise to as many hypotheses and extravagant suppositions, as the question formerly so much agitated, relative to the nature of the yellow and grey amber. Without noticing the more absurd of these, I shall only mention that Pott, Bergman, and Demeste imagined that pumices were amianthus decomposed by the fire; Wallerius, that they were coal or schistus calcined; Sage, that they were scorified marles; and, lastly, the Commendator Dolomieu, that they were granites rendered tumefied and fibrous by the action of the fire and æriform substances.

The most effectual method to investigate the truth in so obscure a question, appeared to me to make the most accurate and minute observations on the spot; to collect and attentively examine the pumices most suitable to this purpose, and to make further ex-

* See Chap. V.

periments on them after my return to Pavia ; which practice I likewise observed with respect to the other volcanic products.

Campo Bianco is a mountain that rises almost perpendicularly from the sea, and which, seen at a distance, appears to be about a quarter of a mile in height, and above half a mile in breadth. No plants grow on it, except a few which bear no fruit, and likewise grow on the tops of the Alps. Its sides are streaked with a great number of furrows, that grow deeper and wider as they approach the bottom, and have been formed by the rains, which easily corrode and excavate a substance so soft and yielding as pumice. The sea at the foot of it has likewise occasioned great devastations, by means of which we discovered a large vein of horizontal lava on which the left waves die away when the sea becomes calm. The formation of this lava was, therefore, prior to the vast accumulation of pumices which rest upon it.

On attentively viewing this prodigious mass of pumice, we soon perceive that it is not one solid whole, and forming only one solid single piece ; but that it is an aggregation of numerous beds or strata of pumices, successively placed on each other ; which beds are distinguishable by their colour, and in many places project from the mountain. They are almost all disposed horizontally, and their position is not dissimilar to the stratifications so frequently met with in calcareous mountains. Each bed of pumice does not form a distinct whole, which might lead us to suppose that they had flowed at different intervals, and every current produced a bed or stratum ; but it consists of an aggregate of balls of pumice united together, but without adhesion. It is hence evident that the pumices were thrown out by the volcano in a state of fusion, and took a globular form in the air, which they preserved at the time of their sudden congelation. We find many such eruptions of pumices in the Phlegrean Fields ; as, for example, that which overwhelmed and buried the unfortunate town of Pompeii. The excavations which have been made to exhibit to view some parts of that city, manifestly shew, that repeated ejections of small pumices in immense quantities from Vesuvius, have covered it with vast accumulations of that substance, disposed in different beds or strata.

A great quantity of these Liparese pumices, of a globular form, are first met with on the shore near Campo Bianco ; but as I doubted whether the action of the waves might not concur to produce the roundness of their figure, I rather chose to make my observations on those that actually formed the beds, which I did, by climbing up one of the sides where the ascent, though difficult, was not impracticable. Here I found pumices approaching, some more some less, to the globular form, and of different sizes, some not being larger than nuts, and others a foot or more in diameter, with innumerable sizes between these extremes. Though the ground colour of them all is white, in some it inclines to yellow, and in others to grey. They swim in water, do not give sparks with steel, nor cause the least motion in the magnetic needle. Their fracture is dry and rough to the touch, their angles and thinner parts are slightly transparent ; and their texture in all of them when viewed through the lens, appears vitreous ; but this texture has diversities which it will be proper to specify.

Some of these pumices are so compact that the smallest pore is not visible to the eye, nor do they exhibit the least trace of a filamentous nature. When viewed through a lens with a strong light, they appear an irregular accumulation of small flakes of ice ; their compactness, however, does not prevent their swimming on the water.

Others are full of pores, and vacuities of a larger size, usually of a round figure ; and their texture is formed by filaments and streaks, in general parallel to each other, of a shining silver whiteness ; and which, at first view, might seem to be silken, did they not present to the touch the usual roughness of the pumice.

These varieties are not only observable in different globes of pumice, but frequently in the same: it is therefore indubitable that these differences are not intrinsic and essential to the nature of pumices, but accidental, and arising from the action of æri-form fluids, which, dilating them in many places; when they were in a state of fusion, have produced that multitude of pores, and those filaments and subtile streaks that denote a separation of the parts; whereas the other pumices which have not been acted on by these gases, have preserved that compactness which results from the force of aggregation.

The fractures of the compact pumices are, in some places, shaded with a blackish, but at the same time shining tinge; which, when carefully examined, is found to be caused by a greater, though still a very slight degree of vitrification of the pumice itself; either because the fire has there acted with somewhat more force, or because the parts were there more easily vitrifiable.

The pumices hitherto described form one of the species which the Liparese sell to foreign traders.

None of these, so far as can be discerned by the eye, or even with the assistance of the lens, contain any extraneous bodies; but were we too hastily to conclude that they really do not, we should commit an error, as their vitrification by artificial means will prove. When kept in the furnace during an hour they become only more friable and of a reddish yellow colour; but when continued in the same heat for a longer time, they condense into a vitreous and semi-transparent mass, within which appear a number of small white felspar crystals that were not visible in the pumice, because they were of the same colour. These stones, however, are not seen in every pumice thus fused; either because it did not contain them, or because they have melted into one homogeneous mass with the pumice. This is one of the many important cases in which we are able, by the means of common fire, to discover the composition of volcanic products which had at first been supposed to be simple.

But to render complete my enquiries relative to the pumices of Campo Bianco, it was necessary that I should not confine my researches merely to the part of the mountain I have mentioned, but extend them to all the principal places where they might be found. This I did, accompanied by two natives of Lipari, whose assistance was particularly useful to me, as they lived by digging pumice, and were well acquainted with every part of the mountain, and the different kinds of pumices it contained. It is impossible to describe the difficulties I met with in these excursions. We frequently passed along the edges of the deep ditches made by the rain-water, at the hazard, in case of a false step, of falling into them, and not easily getting out again; or the still greater danger of precipitating into the sea. The dazzling whiteness of the pumice, equal to that of snow, increased my fears; for I made my excursions in the day-time, when the sun shone, and was strongly reflected by these stones. Every one knows that snow, besides dazzling the sight, is accompanied with the inconvenience, when it is deep and has lately fallen, that the person who walks on it sinks into it to a greater or less depth: and the same inconvenience is experienced from the pumice, which in many parts of Campo Bianco is reduced to a powder several feet deep, and, when the wind blows on it, sinks in on one side, and is heaped up on the other. All these difficulties and obstacles I however surmounted, animated by that ardour which inspires the philosophical traveller, and enables him to brave the greatest dangers, and such as can only be known and appreciated by those who have engaged in similar undertakings. I can affirm, therefore, with great satisfaction, that with the assistance and guidance of the two Liparese, there was no corner of the mountain that I did not visit; and when I reached the summit, and saw that it joined

joined another mountain, the foot of which was in the sea, and which was, in like manner, composed of pumice, I extended my researches to that likewise, and examined the different species of pumice it afforded, or rather which compose a very considerable part of it. I shall proceed to describe them severally, with as much brevity as possible.

I shall first mention those which constitute a branch of commerce at Lipari, and are applied to various purposes. One of these has already been sufficiently described: I shall only add, that it is found in considerable quantities in Campo Bianco, but solely in detached pieces, and not forming currents or veins; whence it is evident, that it has been ejected from the volcano, and has not flowed in the manner of lava.

The second species is cut by the labourers in parallel pipeds, about twenty-two inches long, and eight broad. This pumice is of a dark dirty colour, contains no extraneous bodies, gives a few sparks with steel, and is so light that some pieces of it will float on the water. It is formed by agglomeration of pumiceous bubbles, which are, as it were, conglutinated together, and incline more or less to an oblong figure. To detail their various sizes would be useless prolixity. I shall only say, that from the very minute, and, if I may so term them, infinitesimal, they increase in size till some of them exceed an inch in diameter, though the latter are less numerous than the former. They are all extremely friable as their sides are very thin, and always semi-vitreous. The glass of many of them is white, and has some transparency, but in others is dull, and almost entirely opaque.

As I do not know that this species of pumice has ever been described before though it certainly well deserves attention, I would wish my description to be as clear and explicit as possible. It has been already said that many lavas, and other volcanic productions, on re-fusion, become cellular. To apply this to the pumice in question would be an error. A lava, which has undergone this change by the action of elastic gases, continues to form one whole, though interrupted by these multiplied pores. The pumice of which I now speak is principally formed by an accumulation of small vitreous vesicles, which attach themselves to each other while they were yet soft from the action of the fire; and which, from their globose figure, not adhering except in a few points, have left many vacuities very visible in the fracture of the pieces. The labourers who dig these pumices, after they have shaped them into parallel pipeds, take them on their backs and carry them down to the shore, where they pile them up in large heaps, to be ready for sale when opportunity shall offer. We are not to imagine, however, that this species of pumice is to be found in every part of the mountain: the workmen, to find what they call the vein of it, are obliged to make great excavations, and frequently without success, which, as they told me, in this case, as in fishing for coral, often depends on chance. When they have found the vein they dig it, following its direction; in which laborious employment a number of men are occupied for whole weeks, the vein being sometimes a hundred and fifty, two hundred, or even three hundred feet long, and large in proportion. These veins are called *Faragheni*. I have examined them, and satisfied myself, that the accounts I received were true. Pumice-dust, and large heaps of the first species of pumice, with some scattered vitrifications, usually cover these veins, which, when viewed with the attentive eye of the naturalist, give reason to believe that they are long tracts of pumice, which once flowed in a liquid state. Their bubbles, frequently lengthened in the direction of the vein, seem likewise to prove the same.

M. Dolomieu, who first suggested that many pumices have flowed in currents like lavas, observed that at Campo Bianco the lighter pumices lie above the heavier; in the same manner as in the common currents of lava the porous lavas occupy the highest place.

place. I have certainly observed this disposition; but sometimes it proves fallacious: for if the excavation be continued below the vein which forms the second species of pumice, we frequently again find masses of extremely light and pulverulent pumice.

The first action of the fire of the furnace thickens the sides of the vitreous vesicles, of the second species, and diminishes the internal pores. A longer continued heat entirely annihilates the pores, and changes the pumice into a fixed, obscure, homogeneous, and hard glass, which gives sparks plentifully with steel.

The third species is likewise an object of traffic with the natives of the island, who dig it in the same places where they find the second; and, in like manner, shape it into parallelipedons. This is likewise an aggregate of bubbles, but differing from those of the former in several respects. Those, as we have seen, are conglutinated together in some points, while they are separated in others, so that we can frequently detach them without breaking; while these, on the contrary, are so incorporated by different solid points, that if we attempt the separation of one, we break the others that are contiguous. Here the elastic gases, investing the pumaceous substance in several points, have expanded it in every part into tumours and cavities, nearly as we see in raised and baked paste. It is worthy remark, that frequently when we break one vesicle, we meet with another within it, and concentric. There is likewise another difference between these two pumices. The vesicles of the second species are all more or less vitrified; but many of the third shew no signs of vitrification, are extremely friable, and of a pale red colour.

This pumice, though destitute of any fibrous texture, is specifically lighter than water. To obtain it, large pieces of white pumice, of the first species, in which it is enveloped, must be removed; and it commonly lies in long tracts, in the direction of which its vesicles are sometimes lengthened, which may induce us to suspect that this likewise, when it was liquid, formed small currents. It contains no extraneous bodies.

In the furnace it condenses into an obscure mass of glass, almost opaque, but little porous, and sufficiently hard to give sparks with steel.

These are the three kinds of pumice which the people of Lipari dig for sale. The first is employed in polishing different substances, and the other two are used in the construction of arched vaults, and the corners of buildings. There are, however, other species which deserve the attention of the naturalist, and which I shall here proceed to describe.

On Campo Bianco, and in its environs, we find a fourth species of pumice, of a filamentous and extremely black texture. It is rough to the touch, scarcely at all porous, so heavy as to sink in water, and gives sparks moderately with steel. This pumice likewise contains no extraneous substances. Though when viewed in the mass it appears entirely opaque; its filaments when detached, and examined by a strong light, appear to be transparent, and only dark from their black colour. The second and third species are vesicular; but in this there are not any vesicles. The threads or filaments of which this fourth species is composed have all one direction, which is that of the current. It is here necessary to observe, that though this black pumice is found scattered on the sides of Campo Bianco, in a rock which descends almost perpendicularly into the sea, it forms an entire vein almost horizontal, which enlarges from the breadth of seven feet to twelve, and is above sixty feet in length. If we here examine the structure of this pumice, we shall find that, besides being filamentous, as we have before described it, its filaments preserve a parallelism among themselves, and the direction of them all is from the mountain to the sea; there can therefore be no doubt but this vein may be considered as a true current of pumice.

I was at first inclined to believe that the black colour of this pumice proceeded from iron, but afterwards suspected that it was rather the effect of a bituminous substance, from the strong scent of bitumen which it emitted on rubbing two pieces of it together; and my suspicion was afterwards confirmed by its losing its black, and acquiring a white colour, by remaining a short time in the furnace: on a longer continuance it became a vitreous paste.

But among the different productions of this nature, there is none which more merits attention than that of which I now proceed to speak, and from which originate no small part of the pumices of Campo Bianco. This is a lava, with a felspar base, which is found over the whole mountain and its environs, rising in rocks and crags of an enormous size. It is of a grey colour, of an appearance between siliceous and vitreous, with a consistence or grain less fine than that of quartz, having a small degree of transparency in the angles, and sufficient hardness to give sparks with steel. On attentively examining this lava, we may distinctly perceive in it the gradual transition of the lava into pumice. In many pieces of it we find the external appearances above described. In others the lava begins to soften, and become friable and rough to the touch, but without losing its siliceous-vitreous appearance. In many others we discover the commencement of the pumiceous character. Some small cavities in this lava exhibit minute groups of fibres, of a silvery whiteness, light, extremely friable, but only discernible by the lens. These crackle between the teeth, and rub to powder under the finger; but, at the same time, shew they have a rough grain, and, in a word, prove, by the most indubitable marks, that they are real pumice. On breaking other pieces, the groups or clusters of fibres are found more fixed and large, so as to occupy a great part of the lava, which becomes lighter even where there are none of these clusters, since its texture becomes thinner, though not at all porous; and here the nail only is sufficient to scratch and break them, and the eye accustomed to pumices recognizes the characteristic marks of that substance, though they are not so apparent as in the filamentous aggregates. Lastly, it is not uncommon to find masses of lava, which on one side retain the characters of felspar, and on the other are changed into the first species of pumice, entirely resembling it in colour, lightness, structure, and its other exterior characters. In this pumice we likewise perceive many crystallized felspars, such as we find them in the generative lava, and seemingly not at all injured by the fire.

We thus clearly discover the origin of the first described species of pumice. I must here remark likewise, that these masses of lava, even where they do not appear pumiceous, if they are triturated and pulverized, produce a powder resembling in every respect, the whiteness of its colour not excepted, that which in immense quantities covers, and lies deep in the mountains, and which is produced from the pumices of the first species. The furnace reduces this pumice to a kind of glass, resembling that obtained from the first species.

All these circumstances concur to prove the identity of this pumice derived from the felspar with that first described. I shall only observe, that if the greater part of this kind of pumice has not formed currents, but been thrown out at different times in detached pieces from the volcanic furnace, as has been before remarked, another portion has actually flowed; that, for instance, which in many parts of Campo Bianco is united to the felsparthofe lava.

This lava, however, merits to be considered in another point of view. Hitherto we have only noticed it as the original base of pumice, but we shall likewise find it productive of glass. To be convinced of this, we have only to examine some other pieces from the same mountain; some of which, without losing the appearance of the felspar, begin

to assume the veins of glass, and are at the same time filled with innumerable small bubbles, that are likewise vitreous. But this glass differs from that of the pumices by being more perfect, and more transparent.* In other pieces the bubbles are larger, and the small vitreous veins more numerous. On breaking a large mass, or following the large veins, we find in some parts groups of felspathose lava, in others pieces of vesicular glass, and in others solid glass.

But whence has it happened that the same rock in some places has been changed into pumice, and in others has become glass? since, though the greater part of pumices are vitreous, their glass is far from being so perfect as that in question; which likewise differs from the pumices in this, that though it forms vesicular masses, these masses have a hardness that can never be compared with the usual friability of pumices.

The origin of this difference, it appears to me, may be explained as follows: a certain degree of heat has produced a semi-vitrification in the felspar, which has changed it into pumice. Such a degree of heat therefore was only sufficient for the production of this stone; but a stronger, or perhaps a longer continued heat, has produced a complete fusion, that is, a perfect glass, sometimes abounding in bubbles, from the abundance of the gaseous substances with which it is penetrated.

Seven varieties of these cellular glasses, which are all of a cinereous colour, having been exposed for several hours to the furnace, on their re-fusion, were reduced in volume, and the new glass was consequently deprived of that multitude of pores it before contained.

But to return to the pumices: we have now ascertained that there are four species, of which Campo Bianco and its environs are principally composed.

It may perhaps be objected, that the second and third species which I have described, do not properly belong to the class of pumices, as they are both vesicular; whereas one of the characters of the pumice is the filamentous texture.

I admit without hesitation, that many pumices used by artists to polish different substances have this character; but others, employed for the same purposes, and perhaps in equal quantities, and which no person has ever doubted to be pumices, have no sensible trace of filaments. Of this every one may convince himself by an inspection of the pumices usually sold. Besides, even those that are filamentous do not constantly retain that character; of which the first species furnishes numerous examples. Of this, large masses are found on the shore, cut by the natives into pieces for sale; among which I have observed that, though many pieces have the filamentous texture, there are many others which have it not, either externally or internally. The same I observed in many of the scattered pieces with which the mountain abounds. If, therefore, the filamentous texture be not a character essential to the pumice, I do not see why the stones of the second and third species should not be considered as true pumices, since they bear all the other marks by which the pumice is characterized. It may be added, that at Lipari, and in commerce, they are denominated pumices, and names adopted by the arts ought not to be changed without absolute necessity.

From these observations, made at Campo Bianco, we begin to obtain some light relative to the origin of pumices, since we have seen that those of the first and fifth species have the felspar for their base. The same has likewise been shewn of the others contained in the rock on which the castle of Lipari is built. We still, however, remain in uncertainty with respect to the second, third, and fourth species, from their being always found in the state of complete pumice, and never met with in those strata or masses of lava, which, by shewing the first principles of these pumices, might enable us to discover the stone from which they have originated. To attain this discovery, it was therefore

necessary to analyze these three species by the humid method; and though the base of the first and fifth species, as also of that from the rock of the castle of Lipari, was sufficiently evident; I yet, for the greater certainty, resolved to subject these likewise to the same analysis; and, while employed on this operation, determined at the same time to make similar experiments on some pumices of other countries; that, for instance, which is found in small quantities in the Arfo in the island of Ischia, and two other kinds from the island of Santorine in the Archipelago, a country certainly volcanic. Both the latter species are white, and float in water; but the texture of the one is compact and equable, and that of the other full of pores, and extremely filamentous.

The following are the results I obtained:

First Species of Campo Bianco.

Silex	-	-	-	60.3
Alumine	-	-	-	23
Magnesia	-	-	-	6
Lime	-	-	-	6
Iron	-	-	-	3

Second Species.

Silex	-	-	-	80
Alumine	-	-	-	6
Magnesia	-	-	-	3
Lime	-	-	-	4.7
Iron	-	-	-	4.8

Third Species.

Silex	-	-	-	80
Alumine	-	-	-	4
Magnesia	-	-	-	2
Lime	-	-	-	4
Iron	-	-	-	5.3

Fourth Species.

Silex	-	-	-	84.5
Alumine	-	-	-	4
Magnesia	-	-	-	3
Lime	-	-	-	2.1
Iron	-	-	-	4.2

As this fourth species emitted a bituminous odour; before I analyzed it, I subjected it to distillation, in a sand heat; from which I obtained a few drops of petroleum that swam on the water which had collected during the operation in the recipient of the retort containing the pulverized pumice.

Fifth Species.

Silex	-	-	-	61
Alumine	-	-	-	22.7
Magnesia	-	-	-	6
Lime	-	-	-	5.8
Iron	-	-	-	3

Pumice of the Rock of the Castle of Lipari.

Silex	-	-	63
Alumine	-	-	24
Magnesia	-	-	5.6
Lime	-	-	3
Iron	-	-	2

Pumice of the Arso in Ischia.

Silex	-	-	54
Alumine	-	-	26
Lime	-	-	3
Magnesia	-	-	8.2
Iron	-	-	7

First Pumice of Santorine.

Silex	-	-	66.8
Alumine	-	-	4.2
Magnesia	-	-	14.7
Lime	-	-	11
Iron	-	-	3

Second Pumice of Santorine.

Silex	-	-	69
Alumine	-	-	3
Magnesia	-	-	19
Lime	-	-	6
Iron	-	-	2

From these results it appears that the component principles of the first and fifth species of pumices of Campo Bianco, as also that of the rock of the Castle of Lipari, perfectly resemble those obtained by the analysis of various felspars made by different chemists; among others, by Mayer, Fabroni, Heyer, Westrumb, and Morell.

The same agreement would be found in the second, third, and fourth species, were it not that they contain a greater quantity of silex, and less of alumine; which, however, does not appear to be a sufficient reason for excluding the felspar from these three pumices; both because I know no other stone hitherto discovered, and chemically analyzed, to which these component principles can be more properly referred than to the felspar; and because, the species of that stone being extremely numerous, it cannot excite surprise if some should differ a little from others, in the quantities of their constituent parts, which is the case in every kind of stone.

With respect to the pumice of the Arso in Ischia, it appears evident from the component principles, that its base is a horn-stone, from which the current of lava likewise derives its origin.

Lastly, with regard to the two species of pumices from the volcanic isle of Santorine, it appears, from the analyses adduced, that their base has been an asbestus, or at least some stone analogous to the asbestus: of this we shall be convinced, if we compare these two analyses with those made by Bergman of different kinds of the asbestus*.

* Opusc. Phys. Chem. tom. iv.

If we now proceed to consider the various opinions relative to the origin of pumices, and examine them by the facts now stated, we shall certainly find that the hypothesis of the Swedish chemist, as also of Pott and Demeste, that pumices originate from the asbestos, is not without foundation; it is only erroneous in supposing that they are produced from that exclusively; since it has been shewn, that the base of the pumices of Campo Bianco, and the rock of the Castle of Lipari is a felspar, and that of the pumices of the Arso is a horn-stone.

I foresee that some will with difficulty be persuaded, that the pumices of any volcanoes have for their base either the asbestos or the amianthus, since these two magnesian stones are rare, and only found in small quantities. But this is a mistake; for we know, from the information of naturalists and travellers, that they are both found in many countries; as in the islands of the Archipelago, in Asia, in Persia, and Tartary, not to mention Savoy, Switzerland, and Italy. It is likewise certain that the asbestos is found in some countries in such abundance that whole rocks are entirely composed of it, as in Siberia. I have some large pieces of asbestos, with parallel fibres, of a greenish grey, and difficult to separate, which were brought to me a few years ago by one of my pupils from Chiavenna, in the country of the Grisons, and taken by himself from Mount Uschione, near his native place, which is full of this species of stone.

When we speak of pumices with an asbestine or amianthine base, it is always to be understood that the volcanic fire which has produced them has been excessively powerful; since we know, from the experiments of D'Arcet, Saussure, and Ehrmann, how obstinately these stones resist the fire of the furnace when raised to an excessive degree of heat. The asbestos of Chiavenna, the Genoese territory, Savoy, Corsica, and other countries of Europe, after I had kept them a long time in a glass furnace, still continued refractory, having only lost their yielding consistence, and their flexibility.

From the great affinity between some serpentines and the asbestos, I cannot hesitate to believe, that should the furnace of a volcano be situated among the former, they would likewise be converted into pumice.

I cannot, however, by any means, subscribe to the opinion of Wallerius, that pumices are coal or schistus calcined; nor to that of M. Sage, that they are margaceous scorix; for, with respect to the former, we have seen that pumices are not in a state of calcination, but of vitrification; and with regard to the latter, inspection alone is sufficient to shew the essential difference between pumices and scorix.

It now remains to say a word of the opinion of M. Dolomieu, who supposes pumices to originate from granite. This naturalist having examined with the greatest attention the pumices found in the places which I afterwards visited, especially those that had undergone the least alteration from the fire, since these are most likely to preserve some characters of their primitive base, made the following observations:

First, he found in some a residue of ordinary granite, that is, quartz, mica, and felspar; and remarked that these three substances, which, according to him, serve interchangeably as a flux one to the other, had acquired, by the action of the fire, a species of vitrification, of a middle nature between that of enamel and that of porcelain, and which might be compared to that of a frit, somewhat inflated.

Secondly, he observed, that they gradually assume the fibrous and porous texture, and the other qualities of pumice; whence he concluded that the granite and granitous schistus are the primitive substances, which, by the action of the volcanic fire, pass into the state of pumice.

On my first arrival at the mountain of pumices, I was, as may be supposed, desirous to ascertain the truth of this discovery; and not being successful the first time, I returned again

again another day; and this second visit proving as little satisfactory as the former, I made two others, but with the same ill success. I examined with the greatest care every corner of Campo Bianco, and every other part of Lipari where pumices are to be found; and as it was only necessary to have eyes to discover immediately these granitous rocks, changed more or less into pumices by the action of the fire, had they existed; I shall say, with the freedom of a philosopher, that I was frequently tempted to believe that none were any longer to be found here, because they had all been carried away by the French naturalist.

I do not, however, mean absolutely to deny the truth of this discovery (and indeed how can it be doubted, when M. Dolomieu asserts that he has sent to several men of learning specimens of these granites, which have gradually passed into the state of pumice). It is consequently proved that pumices, besides having for their base the hornstone, the asbestus, and the felspar. Likewise originate from the common granite. We may likewise add the petronlex, since the pumices formerly ejected from Stromboli derive their origin from that stone*; and if naturalists were to examine the pumices of other countries, and to their local observations join chemical analysis, it would perhaps not be difficult to find pumices which originate from other kinds of stone.

As to the pumices with a granitous base, it is obvious to remark that the subterraneous fire which produced them must have been extremely violent, since such must be that of our furnaces to reduce the granite composed of felspar, mica, and quartz, to a homogeneous consistence, similar to that of perfect pumices. Sufficient proofs of this assertion may be found in Chap. XII.

Proceeding from Campo Bianco by sea, and coasting the base of the mountain, we find the side lying on the left, and which is in like manner composed entirely of pumices, full of furrows and channels that take their direction to the sea. Other lesser mountains, which are white, because they are likewise formed of pumices, join the principal one, Campo Bianco. Beyond these rises a mountain of another kind, called the Monte della Castagna, which, in the part of it descending to the sea, is about a mile in extent, and in its circumference exceeds four miles. But who would believe that this mountain is entirely composed of emerald and glass? Before I had read the excellent work of the Chevalier Dolomieu, I knew that Lipari abounds in vitrifications, and the reading of this book confirmed me still more in the idea; but I was entirely ignorant that they were accumulated in such immense quantities in one place as to form an entire mountain; and I feel some pleasure in being the first person who has announced to the world so extraordinary a circumstance. I shall proceed, therefore, to consider these products; first, as they appear on the spot, and afterwards divide them into their species and principal varieties.

I know not to what a tract of these vitrified substances can be more properly compared, than to a large river, which, breaking into a thousand streams, dashes from height to height down a steep precipice, and, suddenly congealed by excessive cold, freezes, breaking every where into clefts and fissures, so that the precipice appears covered with a rough wavy ice, divided into large flakes. Such is the appearance of some of these vitrifications on the back of the Monte della Castagna; but seen from the shore they have a different aspect. In the places where the waves of the sea have produced deep excavations, we perceive that under this vitreous stratum, divided into flakes or plates, there are other strata, and beneath them others, all equally vitreous, but differing in colour, consistence, and direction. Beneath these there may likewise possibly be others

* See Chap. XI.

concealed from the eye by those above them. The thickness of these strata is different; that of the uppermost in some places is not more than a foot and a half, but in others twelve feet. As it is higher than the others, it has not suffered so much from the dashing of the waves, except in its lowest parts. The higher have flowed over the rock, taking from it their configuration. These vitreous bodies, having in them numerous fissures and clefts, are easily broken by the beating of the waves, and detached pieces of them are therefore found in great quantities on the shore and under the water, but more or less rounded by the dashing of the sea, and entirely resembling those smooth irregular stones which form the beds of the rivers.

I shall now proceed to describe the different qualities of the vitrified substances that compose the Monte della Castagna; in which description it will be impossible to be very brief, on account of the numerous varieties of those substances, and the distinct attention which each justly claims.

I. And since the nature and quality of pumices was the last subject that engaged our attention, I shall begin with a substance which may be considered as the point of transition of these bodies into glass. Not that it is not a true glass; but it is so light, that, like many pumices, it will swim in water, and possesses that fragility which always accompanies pumices. Hence it easily shivers when struck against steel, and rarely emits sparks. It has besides, in more than one part, small pores, interrupted by vitreous threads, which is observable in many of these kind of stones. The vitrification is more advanced than in the pumices. The glass is of a whitish-grey, transparent, in part scaly, and in part involuted and contorted, from the number of pores which interrupt the direction of the structure. It is found in detached pieces on the sides of the mountain; and some float in the sea, the sport of the waves.

II. This second glass resembles the former in more than one quality; but it is somewhat more heavy, and what I should call reticulated, as it contains small eyes, or spots, which give it the appearance of a net. It is found in strata above strata, and the face of every stratum is covered with an earthy and half-pulverous coating, in consequence of which coating it easily splits.

III. Capillary glass, or glass reduced by fusion to the fineness of a hair, is so rare in volcanized countries, that only four specimens of it are known to those who have most diligently examined the productions of subterranean fires. The first of these was produced by an eruption in the Isle of Bourbon in 1766, the second by Vesuvius in 1772, the third by Vulcano in 1774, and discovered by the Chevalier Dolomieu; and the fourth noticed by M. Faujas, who in the cavity of a basaltic lava, brought by Besson from the volcanic caves of St. Sebastian at Rome, observed a great number of capillary filaments from three to four lines in length, of a transparent and vitreous substance.

The Monte della Castagna at Lipari furnishes a great quantity of this capillary glass, which I shall consider as the third species of the substances that now claim our attention. Several of these glasses, which have a very thin texture, and are consequently very light, if they are examined internally, usually abound with cracks, sometimes extending from one end to the other of the pieces; and when struck in the direction of these they are easily split. In these vacuities, the glass is extremely small and thin; in many places as fine as a hair, and forms minute entangled filaments, resembling the finest wool, or thin threads tending all the same way. Some of the latter are so fine, that only breathing on them will put them in motion, and break them. They are transparent, and have a lustre like silver. Many of them are two inches long; and besides those which are visible to the naked eye, there are others in great numbers which are only discoverable by the lens. The nature of their formation does not appear to me difficult to explain,

as it probably is to be attributed to the viscosity of the glass when in a liquid state, and the distension which took place from the enlargement of the apertures by congelation.

These thick groups of vitreous threads, which viewed by the less experienced observer, might lead him to believe that they are a species of extremely fine pumices; but a moment's attentive observation will be sufficient to discover the difference, which, as it is essential, I shall here state.

One of the sensible characters of pumices, at least of the greater part, is their being vitreous; but their vitrification is always in some degree less than that of the true volcanic glass. The filaments, however, of which I have just spoken, are entirely vitreous. In fact, they have the transparency of glass, and are smooth to the touch like that; whereas those of pumices are almost opaque, and rough to the touch. The latter may be safely pressed with the finger; but the former, though thicker, enter the skin, and draw blood, as may be expected from the points and sharp edges of glass. It is true, many pumices have their original base the same with the volcanic glasses; but the action of the fire has not been the same on both, but on the glass has either been stronger or longer continued.

Though this seems so clear in itself as to need no proof, I shall yet produce one which is extremely obvious on the comparison of some light filamentous pumices of Campo Bianco and the present glass. Both these bodies contain crystallized felspars of the same species, which in the pumices appear to have suffered no injury from the fire, as they retain their changeable lustre, their laminated structure, their natural transparency and hardness. On the contrary, in the glass in which we find these capillary filaments, though they have not undergone fusion, they are so changed that they have lost all the characters above mentioned; and when touched with the finger, fall into small pieces, the larger only retaining a kind of central point of the original nature of the stone. I have in my possession one of these felspars, which presents a curious appearance. It is placed within one of these apertures, but without touching the sides, and is, as it were, sustained in the air by a crown of capillary threads of glass that are attached to it at one extremity, and at the other fastened to the sides of the aperture. The felspar must no doubt have been originally confined in the glass when it was fluid; but this drawing back at the time of its congelation formed the cavity, and left the felspar as it were isolated, and communicating only with that part of the capillary down, which is a part of the glass itself reduced to threads by the retiring of the sides of the cavity. This felspar, which is four lines in length, and three in breadth, is changed equally with the rest by the fire.

From the facts now adduced, it is evident that the fire which produced these pumices was less powerful in its effects than that from which the glass derives its origin; it is not, therefore, surprising that the latter should be more perfect than the former.

I have entered into these minute details relative to pumices and glasses, because it appears to me that the modifications and gradations visible in the operations of nature deserve the most careful attention of the philosopher, as, otherwise by considering things too generally, we should incur the danger of confounding objects very different in themselves; as for instance, not to wander from our subject, since pumices, enamels, and glasses are vitrified substances, we might confound them together, and even not distinguish them from lavas; and, in fact, there have not been wanting eminent writers who have characterized these also as true vitrifications.

This remark leads me to make a few strictures on an opinion of M. Dolomieu; who having observed that pumice sometimes changes into glass, imagined that this glass, by an inflation of the internal air, might pass into the state of pumice. The former I readily admit, having adduced more than one example of it in volcanic products, not

to mention artificial fusions in which I have always observed this transition of pumices into glasses or enamels, which is, besides, extremely natural; the stone thus passing, by the action of a strong heat, from a less degree of vitrification to a greater. I find it, however, very difficult to assent to the latter hypothesis, as, in that case, we must suppose that a greater or more perfect vitrification may pass into one less perfect, which is certainly very unnatural; since glass re-melted by volcanic fire will remain in its former condition; and supposing it should be inflated with æriform gases, from solid glass, which it was before, it will become vesicular, but never, in my opinion, can it become pumice, since it cannot return to that feeble degree of vitrification which characterizes that stone. Neither are gases an essential requisite in the formation of pumices, several kinds of which are compact, and do not shew the slightest indication of these elastic fluids: besides, many glasses already mentioned, and others hereafter to be enumerated, shew, by the bubbles with which they abound, that they have every where been penetrated by these fluids, without having the least appearance of pumice.

IV. The glasses of the Monte della Castagna which we have hitherto considered, are those that have a texture more or less porous; we will now proceed to those of a compact structure, of which kind is the fourth species, which may be said to compose nearly one half of the mountain. This glass, if viewed superficially, and as it is found on the spot, has rather the appearance of a red earth than a glass, occasioned by a red earthy coating that invests the glass disposed under it in immense plates; which covering, though in many places it but feebly adheres to it, since it may be removed by simply washing with water, in others is so closely united that it forms the last rind or outermost part of the glass, which induces me to believe that it is a superficial decomposition of it. Beneath this earthy coating the glass appears, which is extremely perfect, and as if it had just come out of the volcano. If we except a few pieces in which its structure is spongy, it is extremely compact and solid, and therefore much heavier than either of the other three kinds. It is of an olive-colour, and transparent when in thin scales, examined by a bright light, but in the mass it appears opaque. It gives sparks rather plentifully with steel. Pieces of perfect glass, it is well known, when broken, have their fractures striated, waving and cured. In this glass some of the fractures are the same; but in general they are conchoids, like those of flints. Its consistence is not perfectly homogeneous, as it contains many felspathose points. Its aspect is not lively and brilliant, like that of glass, but somewhat unctuous and dull, from all these qualities this product appears to be more properly an enamel than a glass; unless we are willing to consider it as one of those volcanic bodies which constitute the middle substance between enamels and glasses.

In my description of the glasses of Lipari, I have observed that several of them are intersected with veins or earthy leaves, by means of which they are easily divided into plates. The same is observable in the present glass, in which we find the same quality as in some marbles, which being cut in the vein may be divided, without any great labour, into large slabs, but which break into small pieces if it be attempted to divide them in any other manner. Some of the workmen who dig the pumices, and were very useful companions to me in my excursions to Campo Bianco and the Monte della Castagna, at my request, drove with heavy hammers, an iron wedge into these earthy veins and extracted from the common mass of this glass large plates five feet long, three broad, and two in thickness. To the surface of each plate was attached a coating of hard earthy matter, which still more confirmed me in the opinion I have already given, that this matter had resisted fusion, and, being lighter than the fluid glass, had ascended to the

surface; a conjecture further corroborated by the artificial fusion which I made of this glass retaining some portion of this earth, which with difficulty fused, though the glass was inflated and changed into a frothy enamel.

This glass slightly cuts the factitious glass; and if the cutting angle of one piece is driven with force along the surface of another, it produces a white and impalpable powder.

V. This species of glass completely deserves that appellation, since it is not only the most perfect of all the volcanic glasses of the Eolian isles, but does not in the least respect yield to what is called the Iceland agate, or the gallinaceous stone of Peru, which is supposed to have been the obsidian stone of the ancients. In the large pieces its colour is extremely black, and it is entirely opaque, but the thin leaves are white and transparent. The opacity and blackness may be said to be in the direct ratio of the thickness. This glass, which is extremely compact, is free from æriform bubbles, and from every kind of heterogeneity. It is somewhat harder than the fourth species, and therefore cuts factitious glass more easily, and gives more sparks with steel. Its edges are sharp and cutting.

M. Faujas, having obtained some specimens of the best glass of Lipari, has made some observations on it proper to be given here. He admits that this species is the same with that of Iceland; but he remarks, however, that it differs from it in the polish, which appeared to him more unctuous and less vitreous, besides that in the fractures it had not that waving, striated, scaly appearance, which is proper to the masses of true glass.

It must be remembered, however, that the specimens of M. Faujas were none of the best: the pieces, at least, which I collected, took so exquisite a polish and lustre, that I do not believe any kind of artificial glass ever received one more beautiful and brilliant. This glass, besides, when in the mass, being opaque, became a true mirror; and I therefore find no difficulty in believing that the ancient Peruvians used a similar kind of glass, cut and polished, for mirrors. This glass, likewise, could not be broken without exhibiting the undulating scales, lightly striated, which the French Vulcanist affirms he could not find in his specimens. While I now write, I have before me a piece with a recent fracture, in which these waves are circular and concentrical, occupying an area of two inches and a half, the common centre of which is the point that received the blow: they resemble in some manner those waves which a stone produces round it when it falls perpendicularly into a standing water.

I cannot omit another remark. M. Faujas says, that the edges of this glass where they are very thin, if presented to a strong light, are a little transparent. The transparency of the thinnest parts of the glass on which I made my observations, when compared to that of common factitious glass, is certainly not equal to it: it is not, however, so much inferior as this naturalist seems to suppose. A scale three lines and a half in thickness being presented to the flame of a candle afforded, in part, a passage to the light; and another, two lines thick, being interposed between the eye and external objects, permitted a confused sight of them. Another, half a line in thickness, being laid on a book, it might be read with the greatest distinctness. I have entered into these minute details the better to shew the perfect quality of this glass.

The opacity of this glass in the mass proceeds from a very subtle, and, perhaps, bituminous substance, incorporated with the vitreous matter, and rendering it dark like a cloud. The glass loses this substance if it be left for some hours re-melted in the crucible, and it then becomes white.

Bergman observed that the Islandic glass, when exposed to the fire, melts with difficulty, without the addition of some other substance as a flux. In this it differs from

the present of Lipari, which soon begins to soften in the furnace, and in a few hours undergoes a complete fusion.

This kind of glass, however, is not the most common to be met with on the Monte della Castagna. It is found only in a few places, scattered in large but solitary masses; nor can I pretend to say, whether these are remains of currents, or whether they were thrown out by the burning gulphs.

It happens to this glass as to the different kinds of precious stones, that is, that the same piece is not always throughout of equal purity and value; for, on breaking some of these masses, we sometimes find one portion very pure glass, such as has been already described, and the other imperfect; either because the fusion has not been general, the substance containing bodies foreign to the base, or because that base is rather an enamel than vitreous. These bodies are felspars, but of a new appearance. Nothing is more common than to find felspars in lavas, and sometimes even in enamels and glasses; of which we have frequent examples in this work as well as in the accounts of other writers. But these felspars are always inserted immediately into these substances without any intervening body. Here, however, the case is different: every felspar is surrounded with a rind or coating, which, when it is extracted entire from the enamel, appears to be a vitreous globule, about one or two lines in diameter, of a clear cinereous colour. If we break this globule, we find within it the half-fused felspar, not divested of its coating, but forming one body with it. These globules are very numerous, and sometimes by their confluence form groups; and they are very distinctly visible, on account of the black colour of the enamel.

The manner in which this coating was formed around the felspars I conceive to be as follows: when the enamel was fluid and inclosed the felspars, it acted as a flux to their external parts, and combined with them; and from this combination was the rind or coating produced, while the internal part of the felspars had only undergone a semi-fusion, because it was not in immediate contact with the enamel. There can be little doubt but that the felspars likewise existed in the perfect glass; but the heat probably being more active in that than in the enamel, they were completely dissolved, and the entire mass reduced to one similar consistence. As a proof of this conjecture, the furnace produced a complete homogeneity of parts in the enamel containing these extraneous globules.

VI. When treating of the rocks of the castle of Lipari, I said they were formed of a cinereous lava of a felspar base, which in many places has passed into glass. I likewise remarked that the lava, as well as the large pieces of glass, was filled with globules apparently not dissimilar to the base. At the beginning of the Monte della Castagna, not far from a cottage, the habitation of one of the labourers who dig pumice, there is a current of similar glass that falls into the sea in several branches, and which I shall here consider as the sixth species. This glass however has a more fine and shining grain, and its fracture is exactly such as we observe in glass, yet in beauty it is little inferior to the fifth kind; and if whiteness, or more properly the want of colour, is particularly valuable in volcanic glasses, (since those which have this quality are extremely rare,) this certainly has considerable claim to our attention. Not that it is entirely colourless, as it contains a kind of obscure cloud, which gives it, when viewed in the mass, a blackish hue, but at the edges it appears white. The round cinereous bodies with which it is filled, form the most pleasing and conspicuous contrast, and render the glass irregularly spotted. I have large pieces of the fifth sort cut and polished. Their colour, which is that of pitch, gives them a peculiar beauty. The blackest and choicest marbles of Varenna and Verona are far inferior to them in fineness of grain and lustre; yet, from their

their uniformity of colour, they are less beautiful than this spotted glass, when it has received a delicate polish from the hands of the artist. On the shore, where the torrent fell into the sea, we find pieces of all sizes rounded and smoothed by the continual agitation of the sea; I have met with more than one of half a foot and a foot in diameter. Notwithstanding the powerful action of the waves which have beaten on them for so long a time, their internal parts are not injured, and, when cut and polished, they present surfaces very beautiful to the eye. Tablets of this kind of glass (and there is no want of pieces of a proper size to form them) would add much to the grandeur and splendour of any sumptuous gallery.

But disregarding the beauty which delights the eye, let us proceed to objects that attract and interest the curiosity of the philosophical enquirer. We shall find that the cinereous bodies included in this glass are only points of lava with a felspar base; and on examining in various places the current of this glass, we shall perceive that it is a continuation of the same lava with the felspar base, of which these orbicular corpuscles are composed; whence we shall not hesitate to conclude, that from this stone both the lava and the glass derive their origin, and that we find small particles of lava scattered through the latter, because it has not undergone complete fusion; whence we find some pieces composed partly of glass and partly of this same lava. In some of these pieces we discover small geodes, or thin filaments of an extremely brilliant and transparent glass resembling in miniature the husk of the chestnut.

VII. Though this glass in many particulars resembles the last species, it yet differs from it in others. It is perfect like that, but it is of a deeper colour. In it, likewise, the small globules abound, but they are earthy and pulverizable; every one is detached in its distinct niche, or at most is only fastened to it by a few points.

The description of this seventh species of glass will render that of several others unnecessary, since the glasses I should have to describe contain a greater or less number of similar globules, differing only in the nature of the base inclosing them, which in some is more and in others less vitreous. I shall only make one observation, which I think to be of some importance, relative to the glasses I here omit. Several of them have, even in their internal parts, fissures frequently an inch in breadth and three inches in length. These are not entirely vacuities, but are frequently crossed by small threads of glass connected at their two extremities with the sides. The broadest of these threads are four lines in breadth, and the narrowest scarcely a line. When broken they have the fragility of glass, and are found to be a most perfect glass, being colourless, and extremely transparent. It is easy to conceive that these threads have been formed in the same manner with those of the capillary glass found in similar fissures in the third species of glass.

VIII. The eighth and last kind of the vitrifications of the Monte della Castagna may be denominated an enamel that has the colour and lustre of asphaltum, of a scaly grain, a very small degree of transparency in the points of the fractures, and of considerable weight and compactness, though it is extremely friable. It is found in solitary masses, not very numerous, and the broken pieces have the property of assuming a globose form. Some of these globes resemble those found by M. Dolomieu in the island of Ponza. I have been favoured with two of the latter by the Abbé Fortis; but I find, that, excepting their globose figure, they differ in every respect from those of which I now speak. The globes of Ponza are composed of leaves over leaves, of an imperfect enamel, do not give sparks with steel, and contain felspars and mica; whereas those of the Monte della Castagna rarely include a few felspars, give sparks with steel, have a vitreous appearance, and are not composed of plates or leaves.

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Some pieces of this enamel, broken and detached from the masses, are in one part true enamel, and in another lava. The latter gives few sparks with steel, has a grain approaching to earthy, and, as far as I could discover, has for its base a soft horn-stone, from which, consequently, the enamel, likewise, derives its origin.

These are the principal vitrifications I observed in my excursions to the Monte della Castagna. Some I have omitted to notice, since, some trifling differences excepted, they are essentially the same with those described. It is proper, however, to remark, that more than one of them exhibits manifest signs of having once flowed down the sides of the mountain, in the thick threads and vitreous filaments they contain, similar to those we see, on a lesser scale, in glass fused in our furnaces, when it comes into contact with the cold air, as it flows down an inclined plane.

Every one of these eight kinds of glasses and enamels may be completely re-melted in the furnace. When speaking of the compact glass of the Rock of the Castle of Lipari, I remarked its extraordinary inflation in the furnace, and said that this tumefaction usually accompanies a re-fusion, in our fires, of solid glasses, and volcanic enamels. I then had in view those of the Monte della Castagna, five of which, though compact and solid, in the furnace, swelled high above the edges, notwithstanding that, before their re-fusion, they only filled a third part of it. In the description of other glasses of Lipari, I shall have occasion again to remark the same phenomenon, on which I shall make further observations in another part of this work.

Let us now proceed to consider the most remarkable lavas of the same place, which have an immediate relation with the glasses and enamels, from bearing some characteristic impress of vitrification. I then flatter myself I shall have given a sufficient detail of the volcanic products of this famous mountain.

The first species I shall describe has for its base the petrosilex; is hard and compact, and proportionably heavy, of a siliceous aspect, of a pale blue colour, giving sparks with steel, and abounding in black, rhomboidal, well preserved shorls. When it was in a state of fluidity, it enclosed within it several bodies of a different nature from itself; which being angular, and having sharp edges, shew that at the time they were included in it they were not in actual fusion. Their colour, which is that of baked brick, their numerous fissures, and their fragility, incline me to believe that they have been calcined, probably when they were taken up by the current.

This lava is spotted, and, in many places, even veined, with a black and opaque enamel, harder than itself, but which gives but few sparks with steel. Its aspect is between the siliceous and the vitreous, and it has great compactness. The shorls it contains are unaltered. This lava is disposed in strata, and extends a considerable way in some of the hollows of the mountain.

* The extreme blackness and homogeneity of the enamel into which this lava is changed in the furnace, prevents the eye, at the first view, from discerning the shorls it contains; but they are discoverable with the lens. They have lost their crystallization, and have assumed a globose figure, a certain mark of fusion, and their black colour is tinged with a dead green. The re-fusion shews that this lava contains a number of felspar scales, which I at first could not discern even with the aid of the lens. Their white and somewhat changeable colour renders them visible on the extremely black ground of the re-melted enamel.

The second lava is of a felspar base, partly white, and partly of a reddish yellow: it has a lucid grain, and includes amorphous felspars, unequally distributed, being rare in some parts and abounding in others. In many places, it is a true glass, distributed
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in small masses of various colours, some black, others cinereous, and others white: the latter is as transparent as factitious glass.

This lava is rather rare; at least I only met with two pieces of it, about the middle of the mountain; and from their angles and fractures I judged that they had been detached from some larger mass.

It is one of the very few kinds which melt with difficulty in the furnace; but it is at length reduced to a black porous enamel, but without the fusion of the felspars.

The third lava is of a grey colour, hard, compact, heavy, rough to the touch, and granulous. It has for its base the petrosilex, and gives vivid sparks so copiously with steel that it may supply the place of flint. When viewed in the dark by the light of a candle, it shines so brightly in a number of points, that, at first sight, we might be induced to believe that it was full of small crystallized and extremely brilliant zeolites, or little lucid shoerls; but on more attentive examination we discover, especially in the recent fractures, that these points are only small particles of glass, scattered in great abundance through its whole substance.

On one side of the Monte della Castagna there are prodigious masses of this lava, but in detached pieces, which leave us in uncertainty with respect to its origin.

In the furnace this lava produces a black homogeneous enamel, compact, and slightly transparent in those parts of the edges which are thinnest.

The fourth species has a felspathose base, and likewise contains a number of vitreous particles, but which approach rather to the nature of enamel than to that of glass.

As this lava is extremely white, we might at first be induced to suspect that it has been decomposed by sulphureous acids; an opinion which its friability appears to confirm. But there is more than one reason to convince us of the contrary. First, the injury which this lava had received from these acids would have extended to the enamel, as I have shewn that the enamels and vitrifications of Vulcano are sensibly altered by these volatile salts, whereas the present enamel is not at all affected. Secondly, as these vapours act on the surface of volcanic productions, the decomposition and whiteness do not usually enter very deep into them; and the nucleus of these products retains its colour and primitive compactness. An example of this we have already noticed in the lavas of Solfatara and its environs*; and we shall soon have occasion to mention another in those of Lipari, not far from the Stoves, or hot baths. The present lava, however, which is in detached pieces, many feet in thickness, has the same whiteness and friability on its surface and in its most internal parts. Lastly, these vapours, in decomposing volcanic products, take away the roughness of the parts, and render the surface smooth and more or less soft to the touch; but this lava retains the same roughness in every part. I must here add, that, in all my researches about the Monte della Castagna, I have not found any part of it which shew signs of the influence of these sulphureous vapours.

The furnace in a few hours reduces this lava into a gross enamel of little adhesion, and of which many parts are not vitrified; but in a longer time, it passes into a true homogeneous and extremely porous glass.

The fifth and last lava may be considered in many different points of view, each of which deserves to be distinctly noticed; the fire and elastic fluids having produced very different qualities in the same product. The following are the principal:

If we break a mass of this lava into several pieces, we shall find that some of them have many cracks or fissures: some extending lengthwise, and which seem to have been produced

duced by the retiring of the parts on congelation, and others of a roundish form, probably the effect of the action of the elastic gases. These fissures are surrounded with fibres, knotted and twisted in a thousand ways, and resembling those found in the cavities of some kinds of pumice; except that the fibres of the latter, the finest at least, have the lustre and colour of silver, whereas these are of a dark grey, and a structure not at all vitreous.

Other pieces of the same lava have not these fissures, and differ from the former likewise in other respects. Those before described are light, and have a sponginess similar to that of some burnt bones, as also great friability; whereas, on the contrary, these are compact, hard, heavy, and contain small and shining particles of glass.

Others instead of these particles or points have a vitreous ground, but scattered over with small globules of lava.

Lastly, others have passed into glass, which would be very perfect were it not mixed with the above-mentioned globules.

The colour of this lava, where there are no vitreous parts, is cinereous; and its base, as far as I can discover, horn-stone. In the furnace it produces a scoriaceous enamel.

Having thus described the principal volcanic products of Campo Bianco and the Monte della Castagna, which are pumices, glasses, enamels, and lavas, more or less vitreous, I shall here make a few remarks, before I proceed to describe the other objects that drew my attention on the remaining parts of the shores of the island.

Though Campo Bianco and the Monte della Castagna are considered as two distinct mountains, they are so connected together and continued that they may very justly be esteemed only one; or at least as forming a single group in the island. The identity of the products in both, confirms in some measure the unity of this group. In the part abounding with pumices, we meet at every step with detached pieces of glass, and on the Monte della Castagna amid the glasses we find numerous pumices; a part of the solid kinds of which are dug here after removing the masses of glass under which they are buried.

It is further to be observed, that though this mountainous group when seen from the sea appears isolated, yet, on ascending to the summit, we find that it extends far to the west, as we shall perceive more distinctly when we come to treat of the Stoves of Lipari. I believe, therefore, I should not exaggerate were I to say that this group of mountains, taken in its whole extent, has a circuit of eight miles; nor is the extent of its vitrifications less, if in these we include likewise the pumices, which are in fact only a less perfect glass.

But how much more extensive, on the side of the sea, must have been this tract of vitrified substances in the ages immediately following the formation of the island! We have already seen how the rain-waters, that drain toward the sea from the summit of Campo Bianco, have deeply corroded and furrowed its declivity. The ravages which the waves of the sea have made, and are continually making, have already been described, and are sufficiently proved by the heaps of pumices fallen along the shore, and those which float on the waves at the foot of Campo Bianco; for neither a north nor a north-east wind can blow without a prodigious quantity of these light stones being waisted into the harbour of Lipari.

The devastations which the vitreous mountain della Castagna has suffered, and is daily suffering, on the side beaten by the sea, are likewise very great. That these have formerly been very considerable, is proved by the small vitreous rocks within the sea, which there is no doubt anciently formed one whole with the mountain, and have been separated from it by the corrosion and destruction of the intervening glasses.

In this extensive group of mountains and their environs, we find no characteristic marks of the existence of ancient craters. It is true, that in several places we find cavities that approach to a round form; but they leave us in absolute uncertainty whether they have been mouths of volcanos, since we meet with similar ones, and much more specious, in countries not volcanized. It cannot however be doubted, that Campo Bianco and the Monte della Castagna are the produce of successive eruptions, some of which have formed currents, and others been thrown into the air. Of the former we have seen many proofs both in the pumices and the glasses; and the detached and solitary pieces of these same substances are sufficient evidence of the latter.

With respect to the glasses, besides those which are scattered solitarily on the Monte della Castagna, we meet with them dispersed in like manner on Campo Bianco. The ejections of these substances from the volcanos have likewise extended beyond these places, as I began to find them scattered among the lavas before I arrived at Campo Bianco. We have also seen that some kinds of the pumices bear evident marks of having been thrown into the air from the volcanic gulphs. This I now judge to have been the origin of the pulverized pumice with which Campo Bianco abounds. I at first imagined it was to be attributed to the superficial corrosion of the rain-water, and the influence of the atmosphere; but in more than one deep excavation made on the spot, where either the rains have not penetrated, or if they have, must have been unable to corrode, from want of impetus, I found the same abundance of pulverized pumice: I am therefore of opinion, this must have been thrown out by the same volcano that ejected the pumices. Such, in fact, is the constant effect observable in burning mountains; which, when they eject lavas and other ignited bodies, throw out at the same time clouds of ashes, which, when attentively examined, are found to be only a mixture of small particles of the larger bodies ejected. I have made the same observation relative to the fiery showers of Vesuvius and the ejections of Stromboli.

We have seen that the primordial rocks, which, by their liquefaction, have given birth to Campo Bianco, the Monte della Castagna, and the vast rock on which the castle of the island stands, were for the most part felspar or petrosilex, sometimes converted into pumices, sometimes into glasses and enamels, and sometimes into mixed lavas containing more or less vitreous parts. In describing these vitreous parts, and the large masses of glass that are a continuation of the lavas, I have not attempted to determine whether it has been the consequence of a more vehement heat, that the lava has in some places been changed into glass, or because that in some parts it was more easily vitrifiable. Both opinions appear probable, and possibly both may be true, according to the difference of circumstances. Where a lava retains the nature of lava for some extent, and then changes into glass, I find no difficulty in supposing that its vitrification has been the consequence of a more intense heat: but wherever large masses of lava exhibit points of glass, not only externally, but even deep in their interior parts, it does not seem very natural to suppose that these can have been the effect of a stronger action of the fire upon those points of the lava; they must rather be ascribed to a greater aptitude in the lava itself to vitrify in those parts.

And here an opportunity presents itself to mention an appearance I observed, which certainly merits some attention. In making the circuit of the sides of Campo Bianco, and the Monte della Castagna, I sometimes met with isolated masses which any person without the least doubt would have pronounced to be glass, as in fact they were externally, this glass inclining to a yellow or blue colour, being very smooth, and promising to prove extremely fine. But on breaking one of them it was found to be a pure and simple lava, coated with a slight varnish of glass, like the glazing of an earthen vessel. I

at first imagined that the heat had acted more powerfully on the surface of these lavas when fluid, than on their internal parts : but a further examination convinced me this supposition was ill founded ; for more than one of these masses were angular, and in some places discovered old fractures which sometimes had a conchoidal figure. I could also sometimes join two pieces together in such a manner as to prove that they had once formed a larger whole. In these cases the vitreous varnish, which was about the thickness of one-sixth of a line, was equally extended over the angles, the fractures, and even the surfaces by which the two pieces might be so exactly joined. It was impossible, therefore, not to conclude that this varnish had been produced posterior to the action of the fire. But by what cause ? I candidly confess I know not : I can only say, that on examining volcanic glasses on the spot I have found that some of them, in the parts most exposed to the action of the atmosphere, and the elements, have contracted a kind of opal-appearance, extremely agreeable to the eye, but entirely superficial. May not the same cause, whatever it be, which gives this pleasing polish to glass, by acting on the lava, cover it with a vitreous varnish ? I shall not, however, venture to determine any thing positively.

I shall conclude my observations on these places with some remarks on the universal sterility that reigns through them, though their origin is anterior to the records of history. If we except a few lichens attached to the fissures of the glasses, there is no vestige of a single living vegetable over the whole Monte della Castagna ; and on Campo Bianco, as has before been said, they are extremely rare. This sterility is a consequence of the vitreous nature of the mountain, which in so many ages has not been decomposed into a vegetable earth, and according to every appearance will continue the same for a long series of centuries to come. Among all volcanic products, the vitrified substances are the most refractory to the changes of the atmosphere and the action of the humid elements. This simple observation may teach us how uncertain are all attempts to determine the epochs of the flowing of lavas from the greater or less change they may have suffered from the influence of the atmosphere combined with that of other destructive agents ; the degree of such alteration depending on the nature of the lava itself, according as it may be more or less earthy, or more or less vitreous. We may indeed, with the utmost reason, ascribe an antiquity almost transcending our conception to a volcanic glass, or a vitreous lava, which shall naturally have been reduced to an earthy soil, proper for the production and nourishment of plants.

The abundance of the objects presented by this side of the island of Lipari, has compelled us to be somewhat diffuse ; but this it was impossible to avoid, without failing in accuracy. This prolixity will, however, be compensated, by the brevity with which the other productions of the base of the island may be described ; since, though we have scarcely examined more than a third part, the remainder offer only a few facts deserving observation.

Beyond the pumices the lavas again appear, beginning from the *Punta del Segno Nero*, and extending in a chain of several miles, which on the side of the sea descends in precipices and craggy declivities. These lavas, with respect to their composition, will not greatly attract the attention of the volcanist, since in that they do not differ from those of other volcanos ; they will only excite his notice for their currents, which in some places descend separately, and in others intersect, and pass over each other. For the extent of three miles they do not appear to have suffered any alteration but that which is the effect of the atmosphere, and which in them is extremely small ; but when we arrive opposite to Saline, and tack the boat towards the Strait of Vulcano, we find them all more or less decomposed by sulphureous acid fumes. They present a highly

varied scenery, from the diversity of colours they exhibit; among which the red and white are most conspicuous. On a nearer examination they are found soft, and some of them pulverizable; but the decomposition only reaches to a small depth; these lavas still preserving, in their internal parts, their hard grain and natural compactness. Several of them are covered with a crust of sulphate of lime (selenite).

The lavas thus changed by the action of these salts, extend only from the sea-shore to the part opposite Vulcano; leaving, however, some intervening vacancies. Such is that denominated La Grotta della Signora, formed by a spacious incurvation of the shore hollowed out of the lava, which may be termed a breccia, since it is composed of a number of angular and irregular pieces of lava of a petrosiliceous base, united together, and which, not being extremely solid, has easily been broken and excavated by the action of the waves.

Proceeding farther we find the sea make an incurvature, and form a small bay called the Valle di Muria, which, from the interesting objects it presents, merits to be somewhat particularly described. On its sides rise high and steep rocks of lava, half demolished, the fallen pieces of which lie in heaps on the shore. In several places this lava exhibits no traces of having suffered any alteration from the action of the sulphureous acids; but in others a decomposition very sensibly appears; nor is it wanting in incrustations of sulphate of lime, of a red tinge, though some remain very white. But neither in these places, nor in others before mentioned, do these fumes any longer act, no smell of sulphur is perceived, nor any vapour seen; and it is probable that all remains of internal conflagration have long since been extinct.

Among these lavas we likewise find enamels and pumices. Sometimes the former are separated from the latter, and sometimes one part of the same piece is pumice and the other enamel. The latter is opaque, of a cinereous colour, friable, of a scaly grain, and, as I judge, of a petrosiliceous base. The pumice is of the class of the compact and heavy, and of a filamentous grain. Both the pumices and enamels frequently contain felspars, though scarcely discernible, and some scales of black shoerls.

Both these bodies produce in the furnace a black enamel, with many bubbles in that afforded by the enamel, but fewer in the product of the pumice: the shoerls and felspars fuse in both.

Among these decomposed lavas we meet with certain curious and beautiful objects, which derive their origin, in my opinion, from filtration. Two of these I will describe, after having given some idea of the lava in which they are observed.

This lava is white, friable to a certain depth, and manifestly shews a decomposition by sulphureous acids. It is of a petrosiliceous base, in many places disposed in strata; and its stratification is probably that of the stone from which it originated. It is full of small cells, and other minute cavities, within which the objects I mentioned make their appearance.

The first of these consists of minute crystallizations of shoerls. From the internal sides of several of these cells and cavities project very slender shoerls, which form sometimes a kind of plume, at others a fan in miniature, at others a tuft or bunch, and at others they are detached, and, when viewed with the lens, resemble minute bristles of a dark chestnut colour. A similar appearance I observed in the fissures of a lava of Solfatara*. I am of opinion it is to be ascribed to filtration, after the hardening of the lava; since, though it is certainly very common to find shoerls in lavas, they are always found incorporated within them, in the same manner as they existed in the stone, their original matrix, and never detached from the lava, as in the present case.

* See Chap. II.

The second filtration has produced small quartzose crystals; and the manner in which they are distributed in the lava, and their prodigious number, render them a very singular phenomenon among volcanic objects. Wherever the lava is scabrous, wherever it has folds, sinuosities, cavities, or fissures, it is full of these crystallizations. The larger crystals extend to three lines and a half in dimension; but these are extremely rare, and almost always ill-formed. The greater part are about half a line. When we view a piece of this lava exposed to the sun, it sparkles in every part; but on a more attentive examination we discover the single, minute, quartzose crystals, which may be discerned still more clearly by the aid of a lens.

These crystals generally consist of an hexagonal prism, infixed by the lower part into the lava, and in the upper terminated by an hexagonal pyramid, the sides of which are for the most part isosceles triangles. The form of these pyramids, however, is not always the same, neither with respect to the number nor the figure of the sides, and the same is to be observed of the prisms. Three crystals alone, among the great number I examined, were terminated by two pyramids: the prism was attached to the lava in a few points, and the pyramids projected out. This kind of crystals is extremely brilliant, and of the first water. There is scarcely one which is not streaked transversely like rock crystals. The most regular are in small cavities, without, however, entirely covering the sides of them, as is usual with the geodes. Not a few of them likewise are found out of these cavities, in some parts of the lava: these are frequently short and grouped, not without some confusion of the prisms and pyramids.

The lava which is embellished with these crystallizations forms immense rocks, and vast elevations hanging over the sea, which, wherever they are broken to a certain depth, are found to contain these crystals, accompanied by capillary shoerls, such as have been already described; but the latter are not very numerous.

It is well known that rock crystals sometimes contain within them extraneous bodies, such as small tufts of amianthus or asbestos, metallic sulphures, earthy particles, and even crystallized shoerls of various sizes. I have in my possession a group of needle-formed crystals, from Mount St. Gothard, within which are seven small prisms of black and striated shoerl. The same may be observed in these minute crystals, relative to the capillary shoerls, as will appear from the following facts: First, I have found in a fissure of the lava, a quartzose crystal, containing a group of capillary shoerls, in part included within it and partly projecting out. Secondly, the apex of a similar group or tuft projected from one side of the same piece of lava, and buried itself, with extended threads, within the pyramids of three crystals that formed a knot. Thirdly, one crystal was perforated from side to side by a needle of shoerl, the two ends of which projected out; and many similar needles projected from the surface of another crystal. I might produce many other instances of these sports of nature equally curious; but these appear to me sufficient to prove my assertion, as also another truth, which is, that the formation of these capillary shoerls must have preceded that of the quartzose crystals; otherwise it is impossible to conceive how the former should have penetrated the substance of the latter.

I have generally experienced that the decomposition of lavas was an obstacle to their perfect fusion; and this was the case in the present lava. In the furnace it vitrified superficially, with some beginning of internal fusion; but the pieces still preserved the form they before had. Having broken several of these pieces, I examined the cavities, which, according to the preceding observations, must contain the crystals of which I have been speaking. I in fact found them there, and, to my great surprise, perfectly unchanged; as I could not discern, in either the prisms or pyramids, the slightest flaw or

scratch, and they even retained their brilliancy and transparency. I observed that some of them had been overflowed, if I may use the term, by the lava superficially re-melted, to one-third or a half of the prism, and some of them quite to the base of the pyramid; but the part which rose above the lava was perfectly well preserved. Very different was the case with the shoerls, which, by their melting, had left blackish spots on the lava, though in more than one of these the traces of the shoerl might still be distinguished.

A third stone, the origin of which I likewise ascribe to filtration, is a semi-transparent calcedony, of a milky whiteness, with a slightly blueish cast. It is found in reniform or kidney-shaped pieces, within the lavas of the above-mentioned Valle di Muria, and still more plentifully on the sea-shore. The smallest are an inch in diameter, but the largest eight, and some twelve inches. There are few of them which have not knobs and cavities; the latter commonly form geodes of minute quartzose crystals, but of which little more is discernible than the pyramid. It is well known that calcedonies differ very much in hardness. The present are extremely hard, and, from the strength and quantity of the sparks they give with steel, equal the best flints. They will likewise cut factitious glass; but in this they do not excel the small quartzose crystals produced by filtration, of which we have just spoken.

On breaking some of these calcedonies, one of them was found to contain two extraneous bodies; that is, a small piece of lava and some sulphate of lime crystallized; which were probably taken in by the particles of the calcedony, while in a state of fluidity or softness.

These substances, which are found on and within the lavas, and are foreign to them, derive their origin, in my opinion, from their decomposition caused by the sulphureous acids, or even by the injuries of the atmosphere. The coherence of their constituent parts being destroyed, particles of them are carried away and deposited by the water in the cavities and fissures of the lavas, where, from the affinity of aggregation, they produce stalactitical concretions of different kinds according to their respective natures. If the lapidarious moisture be a mixture of siliceous, alumine, magnesia, lime, and iron, in certain proportions, it will crystallize into shoerls; or if it be entirely or principally siliceous, it will produce quartzose crystals. If again this moisture, in which the siliceous is so abundant, contain likewise a small quantity of alumine, it will consolidate into masses of calcedony, which will take the form of the cavities that have received the moisture.

This latter stone has been discovered in other lavas. Such are the *Vicentine*, called *Enidri Vicentini*, from the drops of water which they sometimes contain. My specimens have none; but I doubt whether any have been found equal to them in size in volcanic countries. In some of them, their milky whiteness is interrupted by rose-coloured spots; which colour is probably derived from the iron that tinged the lava before its decomposition.

Before I conclude this chapter, two more remain to be mentioned, which I observed before I returned to the Haven of Lipari which is distant about three miles from the Valle di Muria.

First, there are two rocks within the channel of Vulcano; one nearly of a triangular shape, a hundred and fifty-two feet high, and twenty in breadth. It is called *Pietra Lunga*, and is remarkable for a kind of gate in the middle of it, through which small vessels may pass. The other is of the same shape, but has greater breadth, and is about two hundred paces distant from the former. The matter of which both are formed is the same, that is, a decomposed lava, of a petrolicious base, and extremely resembling that of the Valle di Muria, which contains the quartzose and shoerlaceous crystallizations; though in this none are to be found. The lavas of Lipari extending along the shore,

shore, in front of these two rocks, are partly of the same quality, which inclines me to believe that anciently these lavas formed one continued whole with the two rocks, though the former is distant from them two hundred and forty feet, and the latter a full mile; and therefore that the channel which separates Vulcano from Lipari, and which is but narrow, must once have been much narrower. I have likewise frequently observed, when the sea has been perfectly calm, rocks under water, between the two above-mentioned and the shore of Vulcano; whence it appears to me not improbable that this island was formerly united to Lipari, and that the incessant beating of the waves has in time formed this channel or strait, in the same manner that many other straits, of much greater breadth, have been produced by the sea.

The second observation I had to make respects the appearance of Monte della Guardia as seen from the sea. It there appears bifurcated, from the projecting of a much smaller mountain, called Monte Gallina, from its north-east side. The roots of Monte della Guardia, on the south and south-east side, are in the sea; and some parts of them afford pumices, which higher up are buried under vast accumulations of lava that has flowed over them. Besides the pumices, several of these lavas, in the direction of the south-west, present large masses of glass, partly detached, and partly incorporated within them. If to these two kinds of vitrifications we add the others which lie under the Castle of Lipari, and on its sides, and which make a part of the base of the Monte della Guardia, we shall perceive how much this mountain must have abounded in various eruptions; an abundance which will appear still greater when we come hereafter to consider its more elevated parts.

These are the most important objects which presented themselves to my observation in my excursion round the base of Lipari; and if in describing them I may appear to have been somewhat too diffuse, their number and importance, and my desire to give the reader an accurate idea of them, must be my excuse. The interior part of the island, which I shall now proceed to consider, will afford me an opportunity to be more concise.

rafterised currents of lava, which it likewise resembles by being disposed in beds lying one over the other, as appears in those places which have been most corroded by the rain. I therefore was of opinion that this tufa had been a stream, if I may use the expression, of slimy substances that had flowed down the mountain; as examples are not wanting of similar eruptions produced in the humid way in the mountains Vesuvius, Etna, and Hecla.

But here a difficulty presented itself in opposition to this hypothesis. Had this part of the mountain been inundated by a torrent of water issuing from the earth, when its violence had ceased, the more heavy bodies must have subsided to the bottom in obedience to the laws of gravity, the less heavy have remained above them, and the lightest have occupied the highest place; which, however, is not the fact, since, as we shall see, at a small depth within the tufa, are found large masses of lavas, enamels, and glasses. But it does not appear to me improbable that these masses may have been thrown out from some burning mouth, after the hardening of the tufa, within which they have not penetrated deep.

Not only the position and winding course of this tufa over the back and sides of the mountain sufficiently prove that it once flowed; its very nature is a strong confirmation of this fact. It is not an aggregation of ashes and sand; a mixture of fragments of shoerls, felspars, and lavas decomposed, and rendered earthy, and fastened together by the action of the water, becoming so hard as to be cut into pieces proper for building, as is the case with many other tufas; but it is merely an argillaceous earth, resembling, from its softness, the hardened mud of rivers. Its colour is a dull grey, its structure somewhat granular, and so yielding that it may be crumbled and pulverized between the fingers. It is light, adheres slightly to the inside of the lip, emits a feeble argillaceous odour, and, when immersed in water, greedily imbibes it in every part.

In the furnace it first acquired a reddish brown colour, and afterwards the black colour of iron. It became so hard that it gave sparks with steel, without however vitrifying, except that its surface assumed a kind of vitreous varnish.

The depth of this tufa is different in different parts of the mountain. In some places it is several feet deep, in others but a few, and in others there is so great a quantity of it that, notwithstanding the excavations made in it by the rains, I was unable to ascertain its depth. But in every place where I could discover the bottom, I observed that it rested on a bed of pumices, partly pulverized, and partly in detached pieces approaching to the globose form. They belong to the class of the lightest of these substances. It appears, therefore, indubitable, that these pumices had been thrown out of the burning mouth of some volcano, before the flowing of the tufaceous current.

This tufa presented a very unexpected phenomenon. On breaking it, its fractures exhibited small black particles, which were distinctly recognized to be true coal, from their blackness, lightness, dryness, the facility with which they broke, and their small degree of hardness. Some of them, likewise, when exposed to fire in the open air, fumed, and became red hot; others emitted a little flame. The latter had not been perfectly reduced to coal, as the fibrous parts of the wood were still to be seen. These coals were small cylinders from two or three lines in length to twelve or fourteen, and of proportional thickness. They appeared to have appertained to branches of trees or shrubs; they are buried in the tufa at various depths, and are found, though thinly scattered, through its whole extent.

This fact, never before, to my knowledge, observed by others in volcanic tufas, might induce us to imagine that the two methods, the humid and the dry, had here been combined; and that the watery slime when it flowed down the mountain, had been pe-

netrated by the fire in such a manner that it had inflamed, and converted into coal, the vegetables it met with in its way. This explanation is certainly not free from difficulties, as the reader, no doubt, already perceives; it therefore may appear more probable that the earthy inundation had involved, and carried with itself, these carbonaceous substances, which existed previous to its eruption, and which derived their origin from a shower of ignited matter having burned, but not entirely consumed, the few plants which feebly vegetated on the declivities of the mountain.

It has been already said, that the rapid descent of the rain-waters on that part of the mountain which leads to the stoves, has corroded the tufa to a great depth; and it is in the middle of these corrosions that we meet with various volcanic bodies, which, together with others lying in the public road, merit well to be described.

First, we find pieces of enamel of every size, which, though they are smooth without, when broken, have, within, an angular fracture. Their colour is a pale blue; they have no great brilliancy, nor are they very hard, as they fly in pieces when struck against the steel. The cause of the want of hardness in this enamel, may be ascribed to the fissures, of which it is full; and these, perhaps, are to be attributed to the pieces of enamel being red-hot when they fell into the tufa not yet dry. The felspars it contains have the same crack, and probably from the same cause.

In the same places is found another kind of enamel containing a great number of small bodies, which I will not absolutely affirm to be garnets, because I was not able to analyze them in the humid way; but their external characters, together with the proofs furnished by the dry way, almost induce me to conclude them such. In all my volcanic researches I have never met with any similar. In general they have a bulbous figure, and are of a blackish colour, which in some inclines to a red. Their surface is smooth and shining, their recent fractures lamellar, perfectly vitreous, and will cut glass. The largest are about three lines and a half in thickness, and are opaque; the smallest, about the third part of a line, and are semi-transparent. They give sparks with steel, and melt in the furnace into a black and scoriaceous enamel. These characters, taken together, certainly give them a great resemblance to garnets: I shall not therefore hesitate to class them with that species of stone; as their not being crystallized is of little importance, since we know that there are also amorphous garnets.

While employed in the examination of these stones, I resolved to compare them with the Vesuvian garnets; for, in my excursion to that volcano, I had collected several different species of them on Monte Somma, which is the ancient Vesuvius. I made several experiments on four of these, of which the following is the result.

The first species is found in a lava with a horn-stone base, of a yellowish grey colour, an unequal surface, and of a consistence little different from earthy, from the great alteration it has undergone; not, as far as appears, from sulphureous exhalations, but from the action of the atmosphere. The garnets it contains have likewise suffered injury, having lost a part of their native lustre, and being easily broken or crumbled to pieces from the multitude of minute fissures and cracks in them. They, however, retain somewhat of the vitreous character. Their colour is between a white and a grey. At first view their figure appears perfectly globular; but on extracting them from the stone, their matrix, (which may easily be done,) and attentively examining them, they are found to have facets, though it is not possible to ascertain the number of them, as many of the angles have been defaced by time. I shall only observe, that having broken one of these garnets into two equal parts, the perimeter of each half was octagonal. This fracture at the same time shewed the texture of the garnet, which is composed of

very thin circular leaves. These garnets are of different sizes, from four lines and a half to one sixth of a line.

The furnace reduces the matrix-lava to a compact enamel of the colour of pitch; but it leaves the garnets untouched, which only become somewhat whiter, more vitreous, and more hard. The blackness of the enamel being a contrast to the whiteness of the garnets, a great number of the latter become conspicuous, which before were not visible in the lava; and, notwithstanding their extreme minuteness, they remain uninjured by the fire.

The garnets of the second species are contained in a lava which has for its base a soft horn-stone. They are larger than the former, and entirely opaque. They are white as snow, and more brilliant in their fractures than the preceding. Many of them are of a round figure, and manifestly shew a crystallization in various facets; which, however, it is impossible to number as they break in pieces if we attempt to extract them from the lava. Many others of them are of very irregular forms.

Several of this second species of garnets inclose within them small prismatic shoerls, of the colour and lustre of asphaltum, which probably pre-existed completely formed, and were taken into the moisture from which the garnet derived its origin.

These garnets are, likewise, infusible in the furnace, though the lava is converted into a porous scoria.

The third kind is strongly infixed in a heavy lava, which also has for its base the horn-stone, is of an iron-black, compact, but not sufficiently hard to give sparks with steel. The garnets, which are of a yellowish white colour, and some of them four lines in diameter, for the most part have clefts or fissures, but in such a manner that in the recent fractures the surface resembles a round polypetalous flower.

The furnace melted the lava, but not the garnets, which only acquired the red colour of copper.

The garnets of the fourth and last species have four-and-twenty facets, and are semi-transparent, white, and vitreous. Their matrix is a compact lava of a horn-stone base, which emits an argillaceous odour. In the furnace it changes into a black enamellar product, but the garnets remain untouched.

On comparing these results with others before detailed, we shall find that the structure of the Vesuvian garnets, so far as it is vitreous and lamellar, is similar to that of those of Lipari; but that, when exposed to the fire a difference is found between these two stones, the one easily melting in the furnace, and the other proving refractory.

Finding, therefore, that these four species of garnets were infusible in the furnace, though continued in it for several days, I had recourse to oxygenous gas (or dephlogisticated air,) by the action of which they all melted, though slowly. When the matrix lava flowed like common glass, the small pieces of garnet within it remained unchanged; but at length fused, though without incorporating with the lava, so as to form a homogeneous whole.

Those chemists and naturalists, who, before me, have made experiments with fire on the Vesuvian garnets, have described results similar to those I observed. Bergmann says these garnets melt with the blow-pipe alone, but a vehement fire is necessary*. Saussure tells us, that a spotted lava (*lave à oeil de perdrix*) which he found on Monte Somma, acquired, after fusion, a black vitrified ground, but that the polyhedrous grains of this lava remained unchanged in the most violent fire; and by polyhedrous grains it

* De Productis Vulcanicis.

is evident that he means what I and others have called garnets *. With respect to the action of oxygenous gas upon them, we may refer to Ehrmann, in his work on the Air of Fire. "The white opake garnet of Vesuvius," says this writer, "differs from garnets properly so called, in this, that it melts with extreme difficulty, (with the assistance of oxygenous gas is here to be understood,) and at length, after continual ebullition, becomes a mass perfectly similar to quartz, even in its fracture, and which crackles in like manner between the teeth."

This kind of ebullition I have observed in the four varieties of garnets above mentioned, when they were in a state of fusion. The first and third likewise produced two small masses resembling quartz, but those of the second and fourth variety were spongy. It is very possible that this author only made his experiments on one species.

Some learned naturalists are of opinion that the garnets of Vesuvius are improperly so denominated; first, because they contain no iron; secondly, because they fuse with difficulty; and, thirdly, because they differ in the proportionate qualities of their constituent parts from those of true garnets. These reasons, however, do not appear to me sufficient to exclude them from being classed with this kind of stones. It is true, that iron is usually contained in garnets, but it is not essential to them; as has been observed by Bergmann, who, in transparent garnets found only $\frac{1}{100}$ parts of this metal. The absence of iron, probably, therefore, renders them so difficult to fuse. With respect to their constituent parts the Swedish chemist (Bergmann) has observed, that the principal of these is flix, the next alumine, and that which is least of all in quantity, lime. This analysis agrees with that made by Achard on some of the purest Bohemian garnets; and such a proportion of the constituent principles is sufficiently suitable to that of the garnets of Vesuvius, in which Bergmann found about fifty-five parts of flix, thirty-nine of alumine, and six of lime. And though the proportion of the flix to the alumine is not entirely the same in both these stones, the difference is not so great, in my opinion, as to induce us to consider them as two distinct species; as will appear by comparing the numbers 55 and 39, which express the quantities of flix and alumine in the Vesuvian garnets, with the numbers 48 and 30, denoting those of the same two earths in the Bohemian garnets, analyzed by the before-cited chemist of Berlin (Achard).

To return for a moment to the garnets of Lipari: these do not so tenaciously adhere to their base as we almost always find the felspars and shoerls; but, like other garnets, are implanted in it in such a manner that they may be easily detached without breaking, leaving the exact impression of their figure in the enamel. This enamel, which is compact, heavy, and of a grey cinereous colour, is found in detached pieces, both in the road and in the tufa; and is the first production which presents itself, after leaving the city to proceed towards the stoves.

Continuing our journey still further along this road, we find in it, and likewise within the tufa, very curious mixtures of a white argillaceous earth and black enamel; both of which are so mingled and kneaded together, that we can scarcely find a quantity of this earth of the size of a pea, which does not contain several particles of this enamel; and very few indeed are the pieces of enamel that contain none of this earth. It has an earthy odour, and adheres to the tongue.

In the same situations where this peculiar mixture is found, we likewise meet with an enamel containing garnets, similar to those above mentioned, but larger, and more approaching to a globular figure. It is remarkable that this enamel, in some places,

* Voyage dans les Alpes, tom. i.

forms one whole with some pieces of lava of a horn-stone base, which also contains garnets.

I shall briefly distinguish four species of lava, each of a horn-stone base, which are met with, in detached pieces, on the road to the stoves.

The first has a fibrous fracture, the colour of iron, some appearance of porosity, sufficient hardness to give sparks with steel, and the power to move the magnetic needle at the distance of a line and a quarter. It emits an earthy odour, and contains felspars.

The second is of a black-grey colour, and, though compact, rather soft. Almost one half of it consists of rhomboidal felspars.

The third only differs from the second by being somewhat more compact, harder, and containing fewer felspars.

The fourth, which in solidity, weight, and hardness, exceeds the three preceding, has a black ferrugineous colour, an earthy fracture, adheres slightly to the tongue, and emits the usual argillaceous odour. It moves the magnetic needle at the distance of half a line.

All these four kinds of lavas are changed, in the furnace, into vitreous scorix, but without the fusion of their felspars.

Having mentioned these, it will be necessary to describe somewhat more at length, another species of lava, which is enriched with a great number of extremely beautiful volcanic chrysolites.

This lava has for its base a soft horn-stone; it is of a dark brown colour, and unequal in its fractures on account of the fissures which separate its parts. It is found in detached pieces, like the four preceding lavas, but these pieces are rare. It gives but few sparks with steel, emits a slight argillaceous odour, and acts on the magnetic needle at the distance of a full line. In consequence of its numerous fissures it is rather light, and when struck with a hammer is somewhat sonorous. I omit to mention some small scales of felspar incorporated in it, and proceed to the examination of the chrysolites.

These, ~~when situated in~~ the external parts of the lava, which have suffered by the influence of the atmosphere and elements, readily attract the eye by their lively colour, which is between a green and a yellow, but in the recent fractures they shine with much more brilliant colours. The most conspicuous are the golden-yellow, and the fine grass-green, with which sometimes is mixed a fire-red, tempered with a tinge of purple. If these chrysolites are exposed to the immediate light of the sun, and viewed under certain angles, their colours become much more lively and bright. Many of them are amorphous, but some are quadrangular prisms. Their surface, in the fractures, shines with a glassy brilliancy, and is sometimes smooth, and sometimes rough, according as the plates of which the chrysolites are composed may have been broken. The small fragments of them are angular and semi-transparent. These chrysolites give sparks with steel, and cut glass nearly like rock-crystal. The largest are not less than three lines and a half in length, but the smallest can scarcely be discerned by the naked eye. They are so firmly infixed in the lava, that only fragments of them can be detached.

The fire of the furnace, and that of the blow-pipe, not only will not fuse these minute stones, but are unable to injure them either in their colours or texture. Oxygenous gas (dephlogisticated air) alone discolours them, and melts them into a globule of a white colour, but without brilliancy.

Though

Though it was not known till the present time that Lipari afforded volcanic chrysolites, they had been before found in volcanized countries, as in Vivarais and Velay, by M. Faujas, and on Mount Etna by M. Dolomieu. But on comparing their chrysolites with mine, I find certain differences and resemblances, which it will be proper to enumerate.

The chrysolites observed and described by M. Faujas, when examined with the lens, are found to be composed of an aggregate of arenaceous grains, more or less fine, and more or less adherent; scabrous, irregular, and sometimes forming crusts and small sandy scales; but for the most part having the appearance of angular fragments united by insertion into each other.

The chrysolites of Lipari have nothing of this nature in their structure. I broke several of them, and examined their fragments with the microscope; but they never appeared to me granular, but always smooth and glassy. The most minute parts of these chrysolites exhibited the same aspect they presented when whole.

I must not omit to mention another difference of importance, which is, that the chrysolites of Lipari are only a few lines in length, whereas those described by M. Faujas are sometimes several pounds in weight.

They agree, however, with mine in their infusibility in an extremely active fire; for those on which he made his experiments resisted the fire of common furnaces, however violent and continued it might be, and could not be reduced to a state of fusion but by the aid of oxygenous gas.

The colours of both are sometimes the same. I say sometimes, for M. Faujas informs us, that several of his chrysolites were only of one colour; a green, or topaz-yellow.

The traits of resemblance and difference between the Liparese and Etnean chrysolites will be seen by comparing the description I have given of the former with what M. Dolomieu says of the latter, in the work I have frequently cited. He tells us, that some of the chrysolites he found there are amorphous, others crystallized in tetragonal or hexagonal prisms, sometimes with an hexagonal pyramid; that their fracture is partly conchoidal, and partly lamellar; that they are harder than quartz; that they are more or less transparent; that their colour is a greenish yellow, with various tinges, and that they are fusible in a strong fire. He does not give their size, but they cannot be large; both because he calls them *grains*, and because those which I observed in some lavas of Etna were very minute.

I have designedly called the chrysolites of Lipari *volcanic chrysolites*, not merely because they are found within a lava, but to preserve a distinction between them and a gem of that name; since I know that some respectable authors are of opinion, that the volcanic stones which, from their greenish yellow colour, and other circumstances, resemble that gem, and therefore are called chrysolites by the volcanists, differ from them entirely in their component parts, and several of their external characters. To this opinion I can make no objection, though in describing these stones I have adopted the name by which they are usually known. It must be observed, however, that some of their properties shew they cannot be classed as *shoerls*, among which some naturalists generally place the chrysolites of volcanos.

It remains likewise to speak of a stone which was the last of the products that offered themselves to my observation, as I proceeded along the declivity of the mountain leading to the Stoves.

The stone is a porphyry, the base of which is the petrosilex, containing felspars with several faces, and brilliant in the fractures, and blackish irregular shoerls. The base has the red colour of brick. It is found in detached masses, some of which weigh several thousand

thousand pounds. It is compact, and scaly in the fractures. The pieces broken from it are irregular; the thinnest are transparent at the edges; and they give sparks moderately with steel. The colour of the base has given the felspars a reddish tinge, as we see in certain oriental porphyries.

But has this porphyry suffered fusion, or is it in its natural state, and at most calcined when it is ejected by the volcano? I cannot pretend positively to decide; but I incline to the latter opinion more than to the former, since an alteration is visible, even in the internal parts, which appears to be the effect of a true calcination.

In the furnace the substance of this rock becomes soft, but does not fuse: the felspars remain unchanged, but the shoerls are vitrified.

The spacious and deep excavations made in the tufa by the rain-water, and which extend from the bottom of the mountain to the summit, afforded me an opportunity to discover and examine the stony substances I have described; for it was only in those excavations that they were visible: in every other part nothing appeared but the naked superficial crust of the tufa. None of these substances are disposed in currents; they are all detached; and thus render it probable that they fell into the tufa after having been thrown up into the air in volcanic ejections.

When we have reached the summit of the mountain, an ample plain opens, formed of the same tufa, but become earthy, in which corn is sown, and a few vineyards are planted. Here we find numerous pieces of shining glass, which is semi-transparent, of a blackish colour, and some of the finest and purest to be found in Lipari. As I wished to discover the origin of this substance, I caused the place where it is found to be dug into. The tufaceous earth is there about three or four feet deep. The pumices lie immediately under it, and among them this glass is found in considerable quantities. It has probably been turned up, and brought to the furnace, by the plough, or other similar instruments used to prepare the earth for sowing the corn.

Beyond this plain there is a gentle descent of about two hundred feet in length, at the end of which are the Stoves. Whatever prepossession in their favour the traveller may have conceived from hearing so much of them, he loses it the moment he sees them. They form a group of four or five caves, more like to the dens of bears than the habitations of men; and which exhibit much less of art than the edifices framed by the beaver. Every cave has an opening at the bottom, through which the warm and humid vapours enter, and another in the top through which they pass out. I entered one of these, but was unable to remain long in it, less from the heat, for the thermometer stood at only $48\frac{1}{2}$ degrees, than from I know not what of a suffocating nature which the air had in it. These stoves now retain little more than their name, and are nearly deserted. In fact, though they still retained their virtue, and were efficacious in the cure of various disorders, how would it be possible to make use of them, when they are destitute of every convenience necessary to that purpose?

When M. Dolomieu visited them, the whole ground on which they stand was penetrated with hot vapours, which, under the form of a thick smoke, issued from small apertures of about an inch, or two inches, in diameter. When I was there, circumstances were much changed, as usually happens in volcanos, where the presence of fire manifests itself sometimes more and sometimes less. There was then only one aperture, of about an inch in diameter, from which from time to time issued a thin stream of smoke, with a strong sulphureous smell. Having enlarged this aperture, I found it surrounded by a small quantity of soft sulphures of iron (pyrites) generated by the union of iron and sulphur. The Abbate Trovatini, whom I have cited in another place, likewise attests, that at certain times several streams of smoke ascended round the stoves; and I shall add, that besides the strong smell of sulphur, which I perceived on approach-

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ing the place, the ground became hot, and the fœtor increased, on digging to about the depth of a foot: from which it may be concluded, that under the stoves and the ground adjacent, some remains of sulphureous conflagration still continue*. The stoves and the warm baths, of which we shall speak below, are the only places in the whole island where any signs are to be found of as yet unextinguished volcanos.

M. Dolomieu, after having described the stoves of Lipari, proceeds to speak of the alterations caused by the sulphureous-acid vapours on the lavas of this place, remarking that all of them, besides having become softer and lighter, have lost their primitive colour, and assumed a white tinge, mixed with yellow, red, violet, and other colours, which the oxides of iron usually produce. He observes likewise, that they are coated with a thick crust of sulphates of lime (selenite or gypsum), which sulphates penetrate likewise to the internal parts, and that some lavas are covered with that kind of iron ore which is called slimy (*fangoza*) or bog ore. He then very ingeniously explains in what manner, by means of a combination of the sulphuric acid with different earths, the lavas have become lighter and variously coloured.

As I visited the stoves three several times, and examined with great attention the lavas that had suffered alteration by the action of the sulphureous acid, I am enabled to add, to the observations already given, some others which I believe to be new, and which I shall here briefly state.

It was an object equally important and curious to ascertain to what kinds of lavas still remaining in the state in which they were left by the fire, those belong which we now see decomposed by acids; and as the observations I had made at Solfatara di Pozzuolo and other places, had taught me that the decomposition diminishes, the deeper it enters into the substance, I conceived that the most proper means to obtain this knowledge would be, to break fragments of the lava, and examine the internal parts, to find how far the decomposition had penetrated. The greater part of the decomposed lavas of the Monte della Stufe are externally of a reddish white; and some are of a blackish colour. I first examined the latter; and presenting their surface to the full light of the sun, I discovered something of a brilliant appearance which invited me to examine it with the lens. It proved an aggregate of innumerable globules of hæmatitic iron, which beautifully cover the surface of these lavas.

I detached a considerable number of these globules, and found that on trituration they assumed a red colour, which is the property of the dark hæmatites. This was therefore a pure martial oxide, deposited here and formed into globules; and under that aggregate lay another oxide of red, but earthy iron. The lava still deeper was of a white colour, intersected with parallel streaks of a reddish black, or lightly shaded with a yellowish tinge.

These lavas are soft, light, and compact: they adhere to the tongue, have the consistence of clay, but do not emit its odour. They seem to be simple lavas, no extraneous bodies appearing in them. It is observable that every fracture is conchoidal; and that when struck they cause a sound similar to that of some kinds of petrosilex, which has belonged to that species of stone, a suspicion which is confirmed by examining deeper within the fractures: since at the depth of two feet or

* It has been shewn, in Chap. XIII., that the decompositions of different products of Stromboli and Vulcano do not derive their origin from the muriac acid, to which, according to M. Sage, the principal alterations of volcanic substances are to be ascribed, but to sulphureous acid exhalations. The decompositions of the environs of the stoves of Lipari, I am at opinion with M. Dolomieu, are to be attributed to the same cause, the existence of which is sufficiently proved by the remains of sulphureous fumes, and the quantity of sulphates of lime, which I shall presently have occasion to describe.

- thereabouts, a grey colour takes place of the white, and the other external appearances diminish; the lavas begin to assume a siliceous aspect, and give a few sparks with steel. Still deeper we perceive without the least doubt that these lavas have a petrosiliceous base, and contain a few shorls, which do not appear in the decomposed parts, probably because they are themselves decomposed.

These observations, which were made on some lavas of a black colour on the surface, are likewise true of several others, which externally are of a reddish white. The appearances in them are essentially the same. The red colour in the internal parts insensibly vanishes; the grey by degrees succeeds the white, which, still deeper, acquires a lustre, the lava at the same time becoming harder, and at length distinctly exhibiting all the characters of the petrosilex.

One of these lavas, streaked with white and a clear red like that of the peach-flower, is spotted on the surface with points almost pulverulent. These are decomposed felspars, though they still retain a residue of crystallization. This lava has been more changed by the acids than the others, being softer, and even pulverable; though at the depth of two feet it is hard, heavy, of a black-grey colour, evidently has a petrosiliceous base, and contains felspars which are perfectly entire.

In describing the variously decomposed lavas of Solfatara, we have seen that felspars are a kind of stones which strongly resist the action of acids. It frequently happens that their base is completely decomposed, while they are scarcely in the least changed. As therefore in the present lava the felspars are decomposed equally with their base, we must be convinced that the strength of these acids must have been very great. In general these lavas at their surface are soft, like dough, and almost saponaceous; characters that usually accompany these decompositions.

We must not omit to notice a lava of the breccia kind, the base of which is likewise petrosilex, and in which the action of the acids has extended only to the depth of a few inches. This base, even near the surface, has not entirely lost its natural colour, resembling that of iron, and in it are incorporated irregular small masses of whitened and pulverulent lava. These, therefore, have yielded more to the decomposition than the base that contains them. At a greater depth we find them unaltered; and they are then only fragments of lava of a horn-stone base.

Though many of the lavas of the stoves of Lipari have suffered by the sulphureous-acid vapours, there are some that are entirely unchanged. I shall only describe one, which is so well preserved that it appears to have been produced but yesterday by the volcanic gulph. If we scale the surface of it, where it projects in large masses from the earth, it appears of a dark iron colour, has an extremely compact grain, and a conchoidal fracture. The scales at the edges are sharp and cutting, and give very lively sparks with steel. It is one of the heaviest and hardest among the lavas, and puts the magnetic needle in motion at two lines distance. It has for its base the petrosilex, containing very brilliant felspar needles.

This lava, therefore, has not been in the least affected by these acids, not probably because it was able to resist their strength, but because it was not exposed to their action. The places under which the conflagrations of a volcano burn, have numerous apertures and fissures through which issue sulphureous fumes; and when lavas are situated around or within these, they will be more or less affected by them. But in the same tracts of ground there are more places than one impenetrable to these fumes, and there, in consequence, the lavas suffer no other alterations than those produced by time. These interrupted exhalations of sulphureous vapours I have observed at Vesuvius, Etna, and Stromboli, and have noticed them before in my accounts of these volcanoes. It is only

to be remarked that, at the stoves of Lipari, the quantity of decomposed lavas being very great, and extending for the most part to a great depth, the sulphureous-acid vapours must have there issued in extraordinary abundance, and at the same time have been of long duration. The intensity of them, and their consequently greater efficacy, might indeed have supplied the place of long continuance; for I have observed, that when the lava of Vesuvius flowed before my eyes, and several of its lateral branches had ceased to move, two of these, which had been penetrated by a thick cloud of the fumes usual there, were already half decomposed, though they were evidently parts of that current which but a few months before had been disgorged by the side of the mountain. Lastly, according to the different qualities of the lavas, and as they may be composed more or less of calcareous, argillaceous, or martial principles, all combinable with sulphureous acids, a greater or less decomposition will be produced.

The different degrees of decomposition in lavas render them sometimes more, and sometimes less susceptible of fusion in the furnace. The parts not decomposed will fuse. A beginning decomposition renders them stubborn, and when it is complete, they entirely resist the fire. The cause of these differences appears to me sufficiently evident. The more earths are pure the more they resist fusion. All those hitherto known are infusible, except in very violent fires. Their mixture facilitates their fusion, as they thus become a reciprocal flux; and we know that fusion readily follows, when siliceous, aluminous, and lime are mixed in the proportion of 3, 1 and 1. There was no lava on which I made experiments, in which I did not find these three kinds of earth; and though they might not be combined exactly in this proportion, their combination was yet such as to render almost every lava fusible in the furnace. The lime which, in the dry way, acts as a flux to the siliceous, is in a great degree diminished in the decomposition of lavas, forming sulphate of lime by its intimate union with the sulphuric acid; and hence we have one impediment to the fusibility of these lavas. The diminution of the aluminous, arising from its combination with the above mentioned acid forming sulphate of aluminous, which is afterwards detached and carried away by the rains*, will likewise be another obstacle; to which we may add a third, which is the loss of the iron, likewise an aid to fusion.

These sulphates, which for the most part accompany lavas, present a pleasing spectacle to the naturalist. Their colours are infinitely varied. Those which are most prominent to the eye, are the rose colour, violet, and orange, and they are the more conspicuous because they are generally placed on a white ground.

I have observed three kinds of sulphate of lime, independent of several varieties which I omit. The first is composed of thin plates, parallel to each other, closely united, brilliant, compact, and opaque. They form strata or beds of different thickness, sometimes more than a foot, and these strata are easily detached from the lavas to which they adhere.

The second species is filamentous, having either parallel or stellated filaments, in which latter case the filaments form a kind of pyramids, which have their apices in one common centre, and their bases at the circumference. We find some very large pieces of this kind, formed by the aggregation of these pyramids.

The third species is composed of thin and shining plates, somewhat elastic, transparent, very soft, and forms the indeterminate crystallization of sulphate of lime called

* To prevent any ambiguity, it may be proper to repeat what I have said in Chap. II., that the pretended transmutation of siliceous, or any other earth, into argillaceous earth, in the decomposition of lavas, has no existence; since, in this case, that earth likewise is diminished, from the causes alleged above.

specular stone ; but this species is rare, and its crystals are always very small. In these cases the determinate and primitive crystallization of this neutral earthy salt is always wanting.

It is therefore evident that this variety of colours, such as yellow, red, or violet, exhibited by the decomposed lavas, is a consequence of the iron pre-existing in them ; which being, if not decomposed, at least greatly altered, by the sulphureous acids, is variously modified, and assumes this diversity of hues. The same cause operates in like manner on the sulphates of lime, formed by the combination of the sulphuric acid with the lime, which is laid open by the destruction of the adhesion of the constituent principles of the lavas, and variously coloured by the oxydated metal. The white colour of the decomposed lavas then, it is evident, is produced by the loss of their iron ; which agrees perfectly with experience, since, where the decomposition has taken place, the lavas are incapable of moving the magnetic needle, whereas they constantly produce motion in it, some at the distance of two lines, and some at more or less, in the parts not decomposed.

I shall conclude my observations on the productions of the stoves of Lipari, with some interesting remarks relative to several different species of zeolites, which I discovered in their vicinity. I shall describe them separately with their matrices.

First species. The matrix containing this zeolite is a lava of a horn-stone base, of a dark-brown colour, granular in the fractures, and which scarcely gives sparks with steel. It shows no indication of having suffered by the sulphureous acids. It is full of small long cavities, all in one direction, and which probably were produced when the lava was in a fluid state. It is in these cavities that this species of zeolite is found. At first view it appears rather to be a stalactical calcedony, having the form of a cluster of grapes. It is of a white pearl colour, inclining to a light blue, and gives some sparks with steel. It has a siliceous fracture, and a degree of transparency. Three properties, however, especially characterise it : first, that it forms a jelly with mineral acids ; secondly, that it flashes or blazes at the moment of fusion ; and, thirdly, that it bubbles, and as it were boils, when in fusion ; and though neither of these characters exclusively appertain to the zeolite, all the three together sufficiently fix the nature of this stone, which must be referred to the class of amorphous zeolites. The clustering grains may be extracted entire, as they attach to the lava but in a few points. The largest extend to five lines in length, by two or three in breadth. The figure which I have called clustering, is the most usual in this species of zeolite ; though some are only oblong globules, of the same size with that of the small cavities which contain them. They are, however, by no means found in every cavity ; for out of a hundred of these cavities, ninety contained no zeolite. This species is contaminated with a pulverulent, orange-coloured oxyde of iron.

The blow-pipe with difficulty melted it ; and several seconds were required for its complete liquefaction, even with the aid of oxygenous gas. It then changed into a snowy-white enamel, full of bubbles. It has a lucid brightness when it begins to melt, and boils and bubbles up when in actual fusion.

Second species. This is found in some pieces of the former lava, but its characters are different from those of the preceding species. It coats over many of the cavities before mentioned with a thin crust, thus forming geodes, which, however, are not crystallized internally. This zeolite, which inclines to a white colour, is more transparent than the other, and, from its hardness, cuts glass almost like rock crystal. The mineral acids have no effect upon it, not even when pulverised, though they convert the former species into a kind of jelly. When melted with the aid of oxygenous gas, it emits a thin brilliant blaze, and is changed, with ebullition, into a vitreous and white globule.

It

It is not unusual to find within these zeolitic geodes, plates of very transparent sulphate of lime. A hundred grains of this pulverised were put into six hundred of distilled boiling water. A solution was obtained, and the oxalic acid precipitated the lime.

Third species. This consists of ovoid globules, externally dirty, from an earthy coating, but which internally are extremely white. In the fractures we perceive that they consist of a number of opaque groups of fibres, striated, silky, and shining, which diverge from the centre to the circumference of the globules, and thus form so many inverted cones. These globules, some of which are more than four lines in diameter, perfectly fill the cavities of an argillaceous, light, extremely friable lava of a deep grey colour. Every cavity, however, does not contain a zeolite of this conformation: in some we find zeolitic stones with several facets, but so confused that the precise configuration of the crystals cannot be distinguished. On attentive examination, they evidently appear to be formed of the same zeolitic substance, which, when it occupied the whole space of the cavity, took the conformation of those fibrous groups that have externally a globose figure; but when a part of this space remained empty, it crystallized more or less. These zeolitic stones always have in the middle a small empty space, where they are crystallized, forming a number of very minute geodes.

The blow-pipe presently melts this third species, and with ebullition; a phosphorescence precedes the fusion, and the pearly globule which is the result, is a semi-transparent glass, abounding in bubbles. If this globule be broken, which requires rather a smart blow, the sharp angles of the fragments will cut deep into glass.

This zeolite, soon after it has been put into acids, attaches to the sides of the containing vessel in the form of a crust, which crust presently resolves itself into a transparent tremulous jelly, similar to that of hartshorn.

Fourth species. The lava which contains this zeolite is of a horn-stone base, and forms two species, at least two varieties; the one of which is granular, rough to the touch, and extremely friable; the other has a kind of softness, a fine grain, and greater solidity. In colour, however, which is a grey, and in their argillaceous odour, both these varieties agree. This lava contains a multitude of zeolitic globules, from half a line to an inch in diameter. On breaking them a vacuity is found within them, thus forming geodes of a crystallization more or less perfect. Wherever the zeolitic substance has been too confined in the cavity of the lava, the crystallization is extremely imperfect, in consequence of the prisms being half-formed and confusedly intermingled; but where that substance had a larger space to develop itself in, the prisms are no longer so indistinct; many of them at least are found to incline to a tetrahedral figure; and where the cavities of the lava have afforded a still greater space to the zeolitic matter, it has crystallized in tetrahedral prisms, of a distinct conformation. Every prism has therefore four faces distinctly separated. In some few places these prisms are terminated by a tetrahedral pyramid. Many of them are of a milky whiteness, and these are semi-transparent; but others have a transparency almost equal to that of quartzose crystals. A single cavity sometimes contains several scores of such prisms, while another shall contain but very few.

The blow-pipe easily melts these geodes with the usual phenomena of ebullition and phosphorescence, and the glass which is the result of the fusion is similar to that of the zeolite of the third species. A similar jelly is likewise produced from it, and with equal promptness, in acids, except that it has a less degree of viscosity.

Fifth and sixth species. These two species of zeolites are contained within an argillaceous lava, of a dark-grey colour, light, and of an earthy consistence: they both merit to be distinctly described. The first species consists of a great number of small spheres, white

white as snow, each occupying a cavity in the lava, and varying in size, the smallest being scarcely one-third of a line in diameter, and the largest more than three lines. The surface of these small spheres is not smooth, but somewhat rough, from an infinity of points which, viewed through the lens, are discovered to be so many minute tetrahedral prisms, distinctly defined. On breaking the spheres we perceive that the prisms are continued within them, and, becoming thinner, proceed to the centre; or, to speak more properly, we find that the spheres are only the result of a number of prisms joined together lengthwise. The portion of the prisms that is immersed within the spheres is opaque; but that part which projects out has a degree of transparency. It is to be observed, that though the greater number of these minute spheres are perfectly solid, many of them have a round vacuity at the centre, sometimes extending to one-tenth part of the whole sphere.

This zeolite is the softest of all the species hitherto enumerated, and may be scraped or cut with a knife.

The sixth and last species is one of the most beautiful zeolites hitherto discovered by naturalists. It consists of minute crystals, extremely clear and bright, which, having facets in every part, vividly reflect the light, and sparkle like so many diamonds. These are very numerous in the cavities of the same lava; but are unequally distributed, as some cavities contain but one of these crystals, while others have two, and others three, though the latter are rare. The largest do not exceed a line, and the most minute are scarcely a quarter of a line. While they remain in the lava, it is not easy to examine them as might be wished; but many of them may be extracted without injury, and viewed in every part with the lens at leisure. We then perceive that these zeolites, where they rest on the lava, are flat; but in their upper part incline to a globular figure; and that there their crystallization is apparent: that the *isolated* crystals, I mean those which in their formation grew without attaching to the other crystals, have eighteen facets, for the most part pentagonal, or tetragonal, but never triangular: that these isolated crystals are extremely rare; the greater number being *aggregated*, that is, confusedly heaped upon each other in their formation: that, lastly, though many of them may compare in clearness with the purest rock crystal, they are yet inferior in hardness, as they with difficulty cut glass.

I at first suspected that these zeolites were a simple modification of the fifth species, which, wherever it had a free space, had formed itself into these brilliant crystals, either isolated or aggregate. But this conjecture was not confirmed by observation. It frequently happens that the white minute spheres which form the fifth species, occupy only one half, or even less, of the containing cavities, without ever taking the form of the sixth species; but it is constantly to be observed that the tetrahedral prisms project farther beyond the convexity of the spheres, and have a greater transparency. They must therefore be considered as two distinct species.

This difference is still more confirmed by the action of fire and acids. The latter do not act, at least sensibly, on the sixth species, though they reduce the fifth to gelatinous flakes or tufts. The fire of the furnace, in half an hour, converts the crystals of the sixth species into globules of extremely transparent glass; whereas it only softens in that time the minute spheres of the fifth, which require a fire of much longer continuance for their complete liquefaction; and the globule which then results is an opaque glass, of the colour of milk. Both, however, have the property which is usually common to zeolites; I mean that of phosphorescence at the moment of fusion, as may be seen by employing oxygenous gas.

After having made these experiments on the zeolites of Lipari, I was induced to examine one of those of Iceland, which have the character of being the most excellent for forming a gelatinous body. I certainly obtained from it very readily an extremely beautiful jelly; but not in the least superior to that produced by the third and fourth species. This foreign zeolite is very white, and forms a group of small conical bundles, closely conglutinated, and intersecting each other in various directions; terminating, at their diverging extremities, in a multitude of irregular cylindrical needles. In the furnace it becomes inflated and considerably lighter, but does not fuse. With oxygenous gas, a hard, milk-white enamel, full of bubbles, is produced.

If we compare these observations with the descriptions of other naturalists, we shall find that the zeolites of Lipari have a great resemblance to those of other countries; and it may be observed that the first species is very similar to that of the island of Ferro, which Born has described in his *Lithophylacium*, and which he has compared to the stalactical calcedony.

The second species, from its hardness, resembles some crystallized zeolites of the isles of the Cyclops of Etna, which, as M. Dolomieu has observed, and as I have since found by experiment, are little inferior in that quality to rock crystal.

The three other species do not essentially differ from several described by Wallerius, Born, Bergmann, Faujas, and others, and which are found in the island of Ferro, the Vivarais, and other volcanized countries. But the sixth species appears to me new; at least I have found no writer who mentions a zeolite, constantly crystallized with eighteen facets, as often as its crystals are detached; nor do I know that any zeolite has hitherto been discovered which is equally clear and brilliant.

It appears that the true figure of the zeolite is a cube; at least, that it always affects that form where its crystallizations meet with no obstacles. According to circumstances it is more or less modified; and the tetrahedral prisms of the fourth or fifth species are probably one of these modifications. The first and second are amorphous; but in the third we discern a beginning crystallization. One of these modifications may be seen in the sixth species; and we know that there are zeolites of other configurations, as some with twenty-four facets, and others with thirty.

Some naturalists have affirmed that the whitest and purest zeolite of Ferro is the only one from which a transparent and white glass can be obtained. I find, however, the glass of the sixth species preferable to it; for it has an aqueous colour, and its transparency is almost equal to that of quartzose crystal. I have found no zeolitic crystals, but those of the isles of the Cyclops, which have furnished a glass equal to this.

No mineralogist is ignorant that Cronstedt was the first who distinguished this stone from the carbonates of lime with which it was confounded, and made us acquainted with several of its qualities. He observed that mineral acids caused no effervescence with it, but slowly dissolved it into a gelatinous body: and this slow dissolution, and conversion of the zeolite into jelly, was afterwards confirmed by others; though experiments made on newly discovered species of this stone have shewn that more than one are not in any manner affected by acids, even when highly concentrated. From among six species of the zeolites of Lipari, we have seen that the third and fourth presently form with acids a transparent gelatinous body; which is less completely characterized in the first and fifth; and not produced at all in the second and sixth species.

M. Pelletier has analysed the zeolite of Ferro, and found that it is composed of 20 parts of alumine, 8 of lime, 50 of silica, and 22 of phlegm (or impure water). Other analyses have been made of other zeolites, by the chemists Bergmann, Meyer, and Klaproth. The minute size of mine, and still more the small quantity I obtained of them, prevented

prevented me from making a similar analysis of them with the requisite accuracy. I was, however, able to ascertain that the second and sixth species contained siliceous matter in a greater proportion than it was found in the zeolite analysed by Pelletier; which perhaps was the cause that these two species do not form a gelatinous sediment; the superabundance of quartzose earth not permitting the acids to extract the lime and alumine, and thus dissolve the union of the constituent principles of the zeolite.

The gelatinous dissolution of the zeolite is neither a quality found in every species, nor is it peculiar to it, since experience has shewn that it is common to other stones, the constituent principles of which are the same with those of the zeolite, and combined in a certain proportion. This identity of principles, which in some species of stones affords, by means of the action of acids, the same gelatinous product, induced me to make an experiment, of which I shall here give the result.

The colourless garnets of Vesuvius contain, according to Bergmann, 55 parts of siliceous matter, 39 of alumine, and 6 of lime. As therefore I had collected a considerable quantity of these at Vesuvius, I determined to make experiments on them with acids, in the same manner I had done on the zeolites. But in the three first varieties which I possess, though I had first reduced them to powder, no gelatinous substance was produced. With the fourth I succeeded; though I did not make the experiment on the same garnets, for the attempt would have been in vain, but on others of the same species, which I have not mentioned, and which had been greatly softened by the sulphureous acids, though they retained their four-and-twenty facets. These the nitric acid, after thirteen hours, reduced to a jelly, though not one so beautiful as that obtained from the zeolites. We may therefore conclude, that this aptitude to dissolution was produced in the garnets by the alterations they had suffered; in consequence of which the nitric acid, penetrating their internal parts, had acted on them as it acts in many zeolites.

It has been believed that zeolites appertain exclusively to volcanized countries, since they are most frequently found there; and my observations may appear to confirm this opinion. It however admits of no doubt that they are likewise often found in countries that exhibit no signs of volcanization; this having been incontestably proved by Cronstedt, Linnæus, Bergmann and others.

It appears equally certain that the zeolites of volcanos do not derive their origin from fire, but are adventitious to those places; not that they were pre-existent to the volcanic eruptions, and taken up by, and incorporated with, the currents of lava, as a celebrated volcanist has supposed. They were no doubt, generated after the extinction of the conflagrations; when their constituent parts being deposited by water in the cavities of the lava, and there combining by affinity, formed these stony substances, according to circumstances, sometimes amorphous, and sometimes crystallized; in the same manner that we have supposed, and indeed proved, the beautiful quartzose stones to be formed in certain lavas on the shores of Lipari, not far from Vulcano. The zeolites now described, likewise, afford a proof in favour of this opinion, those especially the prismatic crystals of which have for their base the sides of cavities in the lavas.

I shall conclude these observations relative to zeolites, with the following enquiry concerning an hypothesis adopted by M. Dolomieu.

That naturalist was of opinion that the zeolites of volcanized countries are only found in those situations which have been covered by the waters of the sea; and the arguments he adduces to prove this, appear to me sufficiently convincing with respect to the multiform zeolites observed by him. But what shall we say of those we have now described? I certainly did not neglect to make the most accurate researches on the spot. It has been already said that these stones are found in the vicinity of the Stoves. The
first

first species is met with about two hundred feet before we arrive at them, on the road from the city of Lipari; the others are scattered at a greater distance, in the steep side of the mountain towards the south. One certain proof that these places had anciently been washed by the sea, would be the finding of the remains or impressions of sea animals. Thus the above-mentioned French naturalist remarks that, at Etna, the lavas of the isles of the Cyclops, and those of the mountains of Trezza, which abound in zeolites, have certainly been covered by the waters of the sea, since at the height of more than two hundred perches above these zeolitic lavas, immense quantities of sea-shells are found. The same may, in like manner, be observed of the Vicentine volcanic mountains which afford beautiful zeolites, and also copious stores of marine remains. It is, however, certain that neither Lipari, nor any of the Eolian isles, present us with any vestiges of sea animals or plants. I do not mean to say that this is a physical demonstration that these places have never been covered by the sea, since it is possible that the marine bodies its waters had left, may have been afterwards destroyed by causes which are not wanting in countries that, at various epochs, have suffered the action of fire; I shall only observe that we are thus deprived of one of the most convincing proofs of this supposed inundation; and I know not on what other we can rely, with respect to a country entirely volcanic.

That zeolites derive their origin from water and not from fire, is proved by the water of crystallization which is more or less abundant in them, and the numbers of them found in some provinces of Sweden, which have never been subjected to the action of fire. That this water has sometimes been that of the sea, the above-cited observation of M. Dolomieu will not permit us to doubt; but it has been proved that there are likewise instances of their having originated from fresh water; of which an observation by Bergmann may furnish an example. He has remarked that a spring of warm water at Laugarnes, in Iceland, when it issues bubbling from the earth, leaves no sediment of any kind, but deposits it at the bottom of a channel by flowing through which it becomes cooler: and this sediment is truly zeolitic, as has been proved by chemical examination*. The nature of this fact he satisfactorily explains as follows: "While the water is very warm, it holds the zeolitic matter in dissolution; but afterwards becoming cold, can no longer support it, so that it precipitates and forms this stalactical concretion." This excellent observation will account for the frequency of zeolites in many volcanos, since the water, whether salt or fresh, being strongly heated by the subterraneous fires, dissolves the zeolitic substances, which it afterwards deposits within the lava, where they crystallize, or remain amorphous, according to circumstances.

When the traveller has arrived at the summit of the Monte della Stufe, he has reached, in that part, the confines of the island; for he suddenly perceives the sea, about four hundred and sixty feet below him, as near as the eye can measure. Taking his way to the south, he then discovers several warm springs, which supply the Baths of Lipari, of equal antiquity with the Stoves, but like them now almost forsaken; and, proceeding in the same direction, meets again with a prodigious quantity of decomposed lavas similar to those of the Stoves, exhibiting the same varying colours, and coated in different places with crusts of sulphate of lime.

When the naturalist considers, and unites in his mind, these prodigious aggregations of decomposed lavas, which occupy an area of several miles, he will, no doubt, be astonished to find there is any volcanized country in Europe, in which the sulphureous vapours, issuing from subterranean conflagrations, have acted through such an extensive

space. Those of Solfatara di Pozzuolo, which have whitened its crater, and which are mentioned with a degree of wonder by every writer on that volcano, are certainly inconsiderable indeed with respect to their extent when compared to these. Yet of all the sulphureous exhalations which must have spread themselves so widely over the island, not one now remains in action, except a few very thin fumes that rise from the ground near the Stoves.

I visited the Stoves three times: the two first I returned to the city by the same road I went, which is hollowed in the tufa; but the third I took my way back by Campo Bianco, and the Monte della Castagna, whence I proceeded to the high mountain of San Angelo. We have already seen that Campo Bianco and the Monte della Castagna are two mountains formed entirely of pumices and glasses, that is to say, of vitrified substances*; but how extensive must be the roofs of these substances! The declivity of the Monte della Stufe, and its ample plain covered with tufa, form, as has been observed, a bed of pumices, mixed with a great quantity of glasses and enamels. At about the distance of a quarter of a mile from the Stoves, towards Campo Bianco, the tufa disappears, and the pumices remain uncovered, forming a continuation with those of Campo Bianco. I have also found them in the road near Mount San Angelo, which contains great quantities, and every where they are accompanied with glasses. If to these we add the other parts of Lipari in which the same substances abound, I shall not exaggerate if I say that almost two thirds of this island, which is nineteen miles and a half in circuit, are vitrified.

This immense and almost incredible quantity of vitrifications may, probably, suggest to the reader the same idea which arose in my mind when I first viewed these places: that the fire which has acted on them must have been extremely powerful. This idea certainly appears very natural. But subsequent experience has taught me that this intense heat is not necessary for the production of this great accumulation of vitreous bodies by subterranean fires. It is certain that the production of pumices, enamels, and glasses requires a greater heat than the simple fusion of lavas, when these substances derive their origin from the same base; but we shall not find it necessary that this greater heat should be extremely violent, if we consider the kinds of stones from which these vitrified mountains have been produced. The greater part are felspars and petrosilex, with some small quantities of horn-stone. As to the latter, it has already been shewn, that it easily vitrifies in a glass furnace with no very vehement fire; in which, likewise, many petrosilices and some felspars are vitrifiable†. It has also been seen that the glasses, pumices, and enamels of Lipari are all completely re-fused in the furnace. It appears to me, likewise, that we have positive proofs that the volcanic fire was less violent than that of the furnace, in the substances, as well crystallized as amorphous, which, without having suffered the least fusion, are found incorporated in the pumices, glasses, and enamels of Lipari, and which may be perfectly liquefied in the furnace.

It cannot, however, be denied that the generative fires of Lipari must, at some time, have been extremely vehement; since, according to the observations of M. Dolomieu, they have even fused granite, composed of quartz, felspar, and mica, and converted it into pumice.

The ancient writers have left us very interesting and instructive accounts relative to the state of the conflagrations which in, and prior to their times, had been observed in Stromboli and Vulcano; and we have made use of them when treating of those two islands. But we can say nothing of the ancient fires of Saline, and that chain of rocks,

* See Chap. XV.

† See Chap. V. and Chap. XI.

which once, probably, made a part of the island Euonimos, since with respect to these antiquity is to ally silent; and we can only infer that the volcanization of these two islands was known to the ancients, from a passage in Diodorus, who informs us, that all the Eolian isles were subject to great eruptions of fire, and that their craters and mouths were still visible in his time*. With respect to Lipari, very few memorials have been preserved of its ancient conflagrations. We are indeed certain of the great antiquity of this island, and that it existed before the Trojan war; since we learn from Homer that, after the taking of Troy, Ulysses landed there, and was treated with the utmost urbanity and courtesy by king Eolus during a whole month, which he continued there†; and though we allow to the poet the usual licence of poetry, it is still most certain that he could not have named this island, and the city it contained, unless they existed at the time he wrote his poem, since which nearly three thousand years have now elapsed. But if we consult other ancient and credible writers, we shall find that before Eolus, Liparus reigned in this island, which from him took its name, being before called *Melogonis*, or, according to others, *Meligunis*.

Another observation, likewise, here naturally presents itself. An island formed by depositions, and the subsequent retiring of waters, may, in a short time, be cultivated and inhabited; but it is not so with one that is produced by subterraneous eruptions, where the decomposition of volcanized matters is necessary; that is to say, a far longer time. If therefore Lipari had inhabitants and cities, and was a cultivated country before the destruction of Troy, it is evident that it must have existed many ages prior to that event.

From the time, however, that mention is first made of this island in history to the present day, we may consider it as certain that no true eruption, or current of lava, has taken place in it; as, otherwise, it is probable some memorial would have been preserved of it, as well as of those of Stromboli and Vulcano. Aristotle, indeed, mentions the fires burning in Lipari, but adds they were only visible by night‡; and the writers who followed him say nothing more. I hence infer that this island had attained its full formation and size, before it was known to men, which was not the case with Stromboli and Vulcano. I must not omit another observation. Many of the lavas of Lipari still scarcely exhibit the least sign of alteration, especially the vitreous, the enamels, and the glasses; though it is evident, from what has been said above, that these bodies must have existed above three thousand years. We hence perceive what an adamantine temperament, if I may use the expression, the fire can bestow on various substances, since they can thus resist the influence of the seasons and of time.

When I prove the antiquity of Lipari by the authority of Homer, I do not mean to consider the other neighbouring islands as of posterior date. I am likewise well convinced by the testimony of history that, except Vulcanello, they were all in existence in the time of that poet, who probably does not mention the other Eolian isles because Lipari was the largest, the most fruitful, and most generally known, as being the residence and seat of government of king Eolus.

* Αυται δι πασαι πυρος εκχρηκασιν αναφιστηματα μεγαλα, ων κρατεις εις γρηγορησαι και τα φοματα μεχρι τω νυν εις φανηται. Lib. V.

† Λιολιπν δ' εις νησον αεικομις. εθνα δ' εναιεν
Αιολος Ίπποταλης, φίλος αθανάτοισι θεοισι,
Πλάτη εν νησω.
Και μεν των εκμισθα πο'ιν και δωματα καλα.
Μηνα δι παντα φιλει μι, και εξαιρεειν εκατα,
Ιλισ, Αργωνν τε νεας, και νοστοι Αχαιων.

Hom. Odyss. Lib. X.

Ibid.

‡ Και το εν τη Λιπαροι δι πυρ φανηεν και φλογηδι; ου μιν ημερας, αλλα νυχλος μονον καισθησι λεγεται. In Mirandia.

CHAP. XVII.—FELICUDA.

Two bays in this island capable of receiving small vessels.—The products found there by the author, sufficiently prove it volcanic.—Circuit of it by sea.—Prismatic lavas falling into the sea.—Spacious cavern hollowed in one of these lavas.—Enquiries relative to its origin.—Curious alternation of stratas of tufa and lava.—Other prismatic lavas along the shore.—Observations relative to them.—Excursion into the interior part of the island.—A mountain near the centre, higher than the rest, on which is discoverable the crater of an ancient volcano, to which, probably, Felicuda owes its origin.—Conjectures that another smaller volcano existed at the summit of a lower mountain.—No other perceivable signs of volcanic mouths throughout the whole island.—Qualities of the lavas forming the interior part of Felicuda.—Glasses, pumices, tufas, and puzzolanas scattered over the island.—Puzzolanas and pumices employed by the inhabitants of Felicuda in building.—The substances of which the island is composed entirely volcanic, except a piece of granite, which appears to be natural.—Reflections on this rock,

IT yet remains to speak of Felicuda and Alicuda, the two extreme islands of those of Lipari towards the west; and I shall the more willingly undertake the description of them, as they have not, to my knowledge, been visited, at least described, by any other naturalist; M. Dolomieu, who was most capable of examining them, having only seen them at a distance, as to have touched at them would have led him too far from his intended route.

On the 7th of October, in the morning, I set sail, from Lipari for Felicuda, distant from the former island twenty-three miles, and arrived there in four hours. This island is not provided with a port; but it has two bays, one on the south, and the other on the north-east side, sufficient for the reception of small vessels, and so situated, that though the wind should render the entrance into one of them difficult, it will be easy to get into the other: both of them are likewise sufficiently sheltered by a mountain.

I landed in the bay on the north-east side, and, in the first place, applied myself to discover of what materials the island was formed; and soon discovered incontestable proofs that it is truly volcanic. Not only is the shore of this bay lined with lava; but, having in the course of the day proceeded farther up on the south-east side of the island, I found among the earth of some fields a considerable quantity of pumices, glasses and enamels, which products I shall separately describe when I come to treat of the internal part of the island.

Being thus fully convinced of the ancient existence of fire in this island, I determined, the next day, to make the circuit and examine the shores of it in the same manner as I had proceeded in the other islands.

Felicuda is nine miles in circumference. I began the circuit of it by examining the lavas that border the small bay which I entered. These have for their base the felspar, which is of a scaly consistence, a light grey colour, not very compact, but giving a few sparks with steel and attracting the magnetic needle. Within its substance are included needles of black and fibrous shoerl, and small pieces of felspar, which are easily distinguishable from the base by their whiteness, semi-transparence, and lustre. A part of the shores of the bay are composed of this lava with deep fissures running lengthwise, as we see in many other lavas. A number of round vacuities are likewise observable in it. They are of considerable depth, and give it the appearance of a honey-comb. I rather incline

incline to ascribe them to the action of elastic gaseous substances, when the lava was in a state of fusion, than to corrosions produced by the influence of the atmosphere or any external agent. It is certain that the air of the sea will greatly corrode many fossil substances situated in its vicinity; and I have witnessed extraordinary effects from its action on many low rocks, on the shore of the Mediterranean, near Genoa, and especially at Porto Venere, the Golfo della Spezia, and at Lerici. I have also frequently observed the external part of many towers and maritime buildings very much injured on that side which fronts the water. The city of Commachio in the territory of Ferrara, perhaps, furnishes some of the most complete examples of such effects. It is situated in the midst of salt lakes; and its porticos and edifices are so much corroded and damaged by the air, that they are obliged to undergo periodical repairs at the end of no very long time, as I observed with surprise during a short stay which I made there in October 1791. The sea-air, however, does not act thus on every fossil substance indifferently, but, with respect to stones, seems principally to attack the carbonates of lime; though not all of these, as appears from the hard Istrian marble with which the superb palaces and sumptuous edifices of Venice are built, and which remains uninjured for a long series of years. I likewise observe that volcanic stony substances are little, or not at all, injured by the air of the sea; and I am the more confirmed in my opinion that the incavations in the litoral lava of which I am now speaking must be attributed to the action of æriform gases, and not to that of the sea air, from observing the same, likewise, in the felspar, a stone much less liable to this kind of alteration than many others.

After having made these observations, I left the bay, and began to coast the island towards the left, on the northern side. I had scarcely proceeded one hundred and fifty paces when I met with a rock of lava, about thirty feet high, and equally broad, rising almost perpendicularly from the water. This rock presented a novelty I had not before observed in the Eolian isles. This was a number of prisms into which the lava divided before it plunged into the sea. The importance of this object induced me to bring my boat close under the rock, that I might make the necessary observations with more certainty and security.

About twelve feet above the level of the sea the rock is smooth and presents an equal surface; but somewhat lower it begins to be furrowed with narrower longitudinal excavations, which descend to the edge of the water, and form prisms with three unequal sides, the side behind remaining attached to the rock, or, to speak more properly, forming one continued whole with it. These prisms continue to preserve their form under the water, of which I had indubitable proof. The sea, though then calm, had a slight roughness towards the rock, to allay which I poured into it some olive oil, which I always carried with me in these excursions to calm the lesser waves of the sea, and thus enable myself to perceive subaqueous bodies at a certain depth as circumstances might require. By these means I discovered that the prisms were immersed in the sea to the depth of some feet. The breadth of some of the prisms was a foot and a half, but that of others less.

This prismatic lava merits to be very accurately described, since, in prosecuting my voyage along the shore of Felicuda, I met with it in several other places, and shall again have occasion to mention it. Its base is a horn-stone of the black colour of iron, and so compact that the smallest bubble is not perceivable in it; it must, therefore, be classed among the heavy lavas. The edges of the thinnest flakes of it are transparent, and give sparks with steel. Its fragments are amorphous, and receive a polish, but without lustre. It attracts the magnetic needle at about the distance of three lines. The powder of this lava is cineritious, and impalpable, and attaches to the finger. In it are
contained

contained various grains of amorphous felspar, and a greater number of small, long, rhomboidal shoerls.

The product of this lava in the furnace is a hard enamel, of the colour of pitch, and full of bubbles. The felspars it contains remain refractory. It is to be remarked, that this enamel does not lose the magnetic virtue.

The place where this rock hangs over the sea is called *Fila di Sacca*. Beyond it the shore of the island, which continues to have a steep descent into the sea, offers only common lavas, except one species which has some rude appearance of prisms, that assume a more distinct form near the surface of the water.

Still farther, at a place called *Saccagne*, a number of small rocks rise above the surface of the water; one of which is called *Il Perciato*, because it is perforated in the middle, and the opening is wide enough to admit small vessels to pass through. The forms of prisms are distinctly discernible in these rocks.

At the distance of fifty paces farther, a spacious cavern opens in the lava of the shore; an object highly interesting and beautiful in the eyes of the volcanist. It is called the *Grotta del Bove Marino* (or Grotto of the sea-ox), perhaps because it was once the retreat of some phoca or seal, as in the Lipari islands, and many other places, the phocæ are called sea-calves. The mouth of this cavern, in the upper part, is oval, and is sixty feet in breadth, and above forty in height. The mouth opens into a kind of porch which leads into a spacious hall two hundred feet long, or nearly, one hundred and twenty broad, and sixty-five high. This hall terminates the cavern. The sea enters it; and as its force is broken by the narrowness of the entrance, small barks when surprised by a storm may there find shelter.

Some may perhaps wish to enquire, whether the roof of this cavern presents any of those stalactical concretions which are observable in many other excavations in mountainous countries. No such concretions are to be seen; the stone of which it is formed being evidently not of an aqueous but an igneous, that is, a lava distinguished by the following characters:

Its base is shoerl in the mass; it is moderately porous, and therefore rather light; but gives sparks with steel. It is unequal in the fractures, has a somewhat argillaceous odour, and attracts the magnetic needle at the distance of half a line. It is of a grey colour; but interspersed with white, shining, rhomboidal felspars. Their splendour is diminished in the furnace; but their whiteness appears heightened from the black colour acquired by the enamel produced by the fusion of the lava, which is opaque and extremely full of bubbles. The fusion, instead of diminishing or destroying, rather increases its magnetism.

This lava, which forms the large cavern, descends almost perpendicularly into the sea, and there assumes the form of prisms, but larger than those before described. It is worthy of remark, that these prisms, though in their lower part they sink deep into the water, do not rise above it, in their upper, more than eight or nine feet.

But in what manner are we to explain the origin of this cavern? How great must have been the violence of the waves of the sea, to form by slow corrosion so vast an excavation within this mass of lava! To this cause I cannot consent to ascribe it; principally for this reason, among others that might be adduced, but which I omit for brevity, that no sooner has the water entered the mouth of the cavern but it loses all its force; besides that the hardness of this lava is such, that it does not easily yield to the stroke of the waves. I incline rather to think it the effect of the action of the gases in the lava at the time it was in a state of fluidity; as we have examples at Etna of caverns incomparably deeper produced by a similar cause.

Immediately

Immediately beyond the *Gròtta del Bove Marino*, we meet with a mixture of tufa and lava, which merits some attention from the curious alternation of its strata. They are found on a high precipice which descends into the sea, the surface of which is covered with a tufaceous soil, resting on a bed of lava, above another of tufa, and so successively, that in a rent made in the precipice by the waters we may number eleven strata or beds of tufa, and as many of interposed lava. It appears, therefore, that the fire and water, by their repeated action, have produced this mixture of lavas and tufas.

The lava of the eleven beds is of the same kind, that is, of a horn-stone base, and containing, as usual, shoerls and felspars. It has an earthy aspect, a blackish colour, and a strong argillaceous odour. It moves the magnetic needle at the distance of two lines, and the enamel into which it is changed in the furnace has the opacity and blackness of pitch, and its magnetism is greater than that of the lava before fusion.

The beds of tufa, likewise, do not essentially differ from each other. They are an ill-kneaded mixture of lumps of argillaceous earth, more or less tinged with yellow oxyde of iron, which earth is easily pulverable. With it are mixed numerous shoerls, that from the softness of the base may be separated entire, which they scarcely ever can be in the lava. Notwithstanding, however, the facility with which they may be detached, it is difficult to determine their crystallization, not merely from their extreme minuteness, for some of them are two lines in length, but from their being scarcely ever found single, almost every one being a group of aggregated shoerls. When one, however, is found single and detached, it appears to be an hexagonal prism terminated by two trihedral pyramids. They are black, shining in the recent fractures, and are somewhat fibrous: in fine, they perfectly resemble in their structure the shoerls incorporated in lavas.

The tufa, after remaining two or three hours in the furnace, assumes a red colour, and become hard; its magnetism is likewise strong, though before it was scarcely perceptible. A longer continuance in the same fire reduces it to a porous scoria, which does not lose its magnetism, and the black colour it acquires renders more conspicuous a number of white felspars which before were not discernible in the tufa. The shoerls are semi-vitrified, and assume a yellowish tinge.

In the remainder of my circuit round the island, till I returned to the place whence I set out, I observed no other interesting objects, excepting a long tract of prismatic lavas, similar to those I have already described.

I shall conclude what I have to say on these prismatic lavas, which occupy a considerable part of the shore of the island, with the following remarks:

First. These prisms have never more than three faces, one of which always remains adherent to the lava.

Secondly. Their direction is never oblique or transverse, but, without exception, perpendicular to the sea.

Thirdly. They are not articulated, as they have been observed to be in some volcanic countries, especially on Mount Etna, but form one continued line.

Fourthly. In their lower extremity they descend within the water, and, in their upper, rise some feet above the level of the sea.

Fifthly. These prismatic lavas have for their base, either the horn-stone or shoerl in the mass.

I shall now proceed to describe the objects which appeared to merit notice in the interior part of Felicuda. This island, when seen from the sea, at a little distance, has the appearance of a number of mountains heaped together; one of which, situated in the centre, is much higher than the rest, rising perhaps half a mile above the level of

After having examined the base or shore of the island, I proceeded, therefore,

meet with steep precipices in some parts of it, they are declivities, which relieve weariness and restore strength.

When I had reached the summit of the central mountain, I perceived that it inclosed a capacious hollow called *Fossa delle Felci* (the ditch of fern), because it formerly was overgrown with that plant; though when I was there it had been all rooted up, with the intention of sowing corn the next spring. This hollow is about half a mile in circuit, the sides approach as they descend, and its depth is not more than forty feet. These circumstances sufficiently prove that this was the ancient crater of the volcano; and that, perhaps, or rather without doubt, this was the first, which, by its eruptions, contributed to the formation of Felicuda.

It is likewise to be observed, that the external part of this crater corresponds to the internal; that it is a truncated cone; that its lavas, parting as from a centre, have diverged like rays down the sides of the mountain, while those on the side towards the north-west have poured rapidly into the sea. The proposal to sow corn in this hollow argues that it must be earthy, as it really is. It is formed of a half pulverulent tufa, under which, however, the lava is discoverable.

Three ridges rise on this mountain, one of which descends to the south; and, at about half way up, joins another mountain. The second of these ridges has its direction to the east, and the third to the west. From this summit I had a complete view of Felicuda, and looked round me with attention to see if I could discover the signs of any other crater. I thought I could discern the vestiges of one to the south-east, and, afterwards, repairing to the spot, was more confirmed in my opinion. I found a hill about half as high as the mountain already described, and about two miles in circuit. It is isolated on every side, and has the figure of a broken cone, truncated at the top, where it sinks into a cavity growing narrower towards the bottom, which appears to be the relics of an ancient crater. Scattered pieces of various lavas, half-buried in an earthy tufa, occupy the cavity of this hill, and its external sides are formed of a number of currents of lavas.

Except these two craters, of the last of which I have expressed myself with some doubt, I know not of any throughout the whole island; as I shall not venture positively to consider as such a number of cavities, hollows, and caverns which we meet with in various places, such appearances not being sufficient to characterise a volcanic mouth.

The principal lavas of the shore of Felicuda have already been described singly: it is now necessary to specify those which form the internal and more elevated parts of the island. These, as far as I was able to discover, during the stay of five days which I made there, may be reduced to three kinds, if we omit those which are merely varieties.

The base of the first is a horn-stone of a colour between a black and a grey, of a fracture evidently brilliant, without any appearance of pores, and which gives sparks copiously with steel. The pieces into which it breaks have no determinate form, do not refuse a tolerable polish, and move the magnetic needle at the distance of a line and three fourths. Minute grains of quartz, numerous scales of felspar, and extremely small and brilliant needles of shoerl are incorporated in this lava.

The furnace fuses the shoerls, but not the quartz and the felspars; and the lava is changed into a black, frothy, and opaque enamel.

This

This lava extremely resembles the prismatic lava described above; though it has not that regular configuration.

The lava of the second species is likewise of the horn-stone base; not very hard nor heavy; of a cinereous and earthy aspect, without pores, attaches slightly to the inside of the lip, and emits an argillaceous odour. The shoerls it contains are rhomboidal, scaly, and of a violet colour.

In the furnace it is only softened, and the shoerls remain entire.

The third species has for its base shoerl in the mass. It is black without pores, rather heavy, and of a granular fracture.

The heterogeneous stones which are mixed with the substance of this lava, are of three kinds: small irregular quartzose particles, which, from their whiteness, are most conspicuous; a few minute felspars, and numerous rhomboidal shoerls, of a dark violet colour, and remarkable for their size, some of them extending to seven lines.

The felspars and quartzose grains are refractory in the furnace; though their base is easily fusible, and produces a shining, opaque, and porous enamel.

The internal part of the island, as far at least as appears from the surface, is composed of these three lavas and their varieties; which lavas form currents, that, from their great antiquity do not exhibit those tumors, wavings, and inequalities, which are observable in recent lavas, or those of a moderate age. The same antiquity is, likewise, probably the reason why in Felicuda we do not find scoriæ, or scoriaceous lavas; these usually from their slight and feeble texture, and from their lying on the surface of the current, being the first which are altered and destroyed.

When treating of Lipari, I remarked the great effects which have been produced on the products of that island by the sulphureous acid exhalations. The contrary is to be observed of Felicuda, there not being a single lava which exhibits the least sign of their influence; though they all bear the marks of the injuries of time and of the atmosphere. So much have I found them changed, especially near the surface, that had I not broken up the lavas to the depth of some feet, a practice to which I had accustomed myself in these researches, I should frequently have taken the same lava for others specifically different.

Having thus described the different kinds of lavas of this island, it will now be proper to proceed to treat of the other volcanic substances it contains. Among these are the tufas, which are found in great abundance in other parts of the island beside those above described. In general they are pulverulent, light, spungy, of an argillaceous nature, and greedily imbibe water. The places in which they are found, are the only parts of the island which the inhabitants can render productive by cultivation.

It is among the tufas that we discover glasses and pumices. We will treat of these two substances separately, beginning with the first.

I have already said, that I had scarcely landed in Felicuda before I discovered several pieces of volcanic glass. In my subsequent researches, I afterwards discovered that this glass was not found among the lavas, but in the cultivated earth of the fields. The peasants of those parts confirmed the truth of this observation, and, finding I was in search of this substance, brought me more of it than was necessary, which they collected in the fields where they worked. As I was not, however perfectly satisfied with this first observation, I directed them to dig a deep trench in one of the fields which most abounded in specimens of this substance, with a view to try if I could discover a vein, these being only detached pieces. The trench they dug was eight feet deep and five in breadth. For the depth of two feet I found only a tufaceous earth, containing some

of these vitreous pieces. At a greater depth the virgin tufa appeared, untouched by the ploughshare, or any rustic instrument. This tufa likewise furnished a similar glass, but always in detached pieces; nor was any difference perceivable in the nature of these products, on continuing the research to the bottom of the trench, where the tufa was still found.

It appears, therefore, that the glass in the ploughed fields had its seat in the tufa; though it cannot be affirmed with certainty, that it was thrown out from the mouth of the volcano in the same state in which it is now seen; since it is only found in plates or flakes, and with those points and sharp angles, those cutting edges and waving streaks, which we observe in glass, whether volcanic or factitious, when it has been broken and divided into fragments by a hammer, or other heavy body. We must therefore conclude, that after the subterranean conflagrations had reduced the stony substance to glass, this glass has been thus broken and shivered by some convulsion of the earth, or by some violent and tumultuary agent.

The larger pieces are about five inches and a half over, and two in thickness. Many of them are not inferior in clearness and brilliancy to the finest and brightest glasses of Lipari; others are less transparent, and of a cineritious, or grey colour; while others are almost entirely opaque; and these approach nearer to the nature of enamels than to that of glasses. They are all, however, extremely compact, and will readily give sparks with steel, and cut common artificial glass. Several of these pieces contain within them small white particles, which have been observed and described in many of the glasses of Lipari, which particles indicate that the glasses containing them is not so perfectly vitrified as the rest. We also find pieces, though they are rare, the one half of which is a very black glass, and the other a simple lava. The lava, which thus forms a whole with the glass, is of a cineritious, colour, and, as appears from some analyses which I have made of it, is of a petrosiliceous base.

This glass, like other volcanic glasses, changes in the furnace into a vitreous froth.

It now remains to speak of the pumices, which are likewise enveloped in these tufas. These never form large masses, but are always found in detached pieces, of rather a small size, the largest rarely exceeding the bigness of the closed hand. In general they are more plentiful than the glasses, and among the tufas of uncultivated places, it is only necessary to remove the surface to find them by hundreds. During my stay at Felicuda I resided in a place called La Valle della Chiesa (or the Valley of the Church). This is a small plain, on the east side of the island, in which stand the parsonage-house and the church, two indifferent buildings, suitable to the poverty of the country. This place, as likewise a spacious declivity to the south, abounded with pumices, both on the surface of the tufas, and below the surface, wherever they were dug into.

These pumices are of two kinds; the one cellular, extremely friable, fibrous, and which float on the water; and the other compact, heavy, without pores, and of a smooth fracture; but which yet possess all the true characters of pumice. Some are of a reddish colour, others yellowish, and many ash-grey. All are plentifully furnished with extremely brilliant vitreous feltspar-scales.

In my observations on the pumices of Vulcano I have remarked, that instead of swelling in the furnace, and being transformed into an ebullient product, as is almost always the case with glasses and compact enamels, they become of less bulk, lose their pores, if they had any before, or at least contract, and therefore become heavier. The present pumices do not differ in this respect from those of Vulcano; and the enamel which they produce in the furnace has a black and shining ground, interspersed with whitish

spots which are felspars, that, having lost their lustre and transparency, are become white. This enamel puts the magnetic needle in motion at the distance of a full line, notwithstanding that it had no sensible effect on it when in the state of pumice.

There is no reason to suppose that these pumices have ever formed currents, both because they are always found in detached pieces, and because their pores have not that direction which is usually observable in pumices that have flowed in the manner of lavas. The figure of the pores in pumices that have flowed, is usually more or less oblong; whereas in the pumices of Felicuda (I mean the cellular) the pores are almost always orbicular. We must therefore conclude that they have been thrown out from the mouths of volcanos; to which the globose figure of many of them is perfectly consonant.

I should esteem my account of the different productions of this island very defective, were I not to mention another which still more confirms its volcanization: I mean the puzzolana found here in several places, and which, when carefully examined, is found to be a mixture of minute fragments of pumices, tufas, and lavas. The inhabitants of Felicuda make use of it, as also the pumice, in building their houses, in the following manner: they bring carbonates of lime (calcareous earths) from Sicily, and burn them in furnaces, which are erected for greater convenience on the sea-shore; and at the end of forty hours an excellent lime is produced. One-third of this and two-thirds of puzzolana, mixed together with water, form a cement which unites and binds the pieces of lava here used instead of bricks and stones; and to give, as they affirm, a greater strength and solidity to the cement, they mix with it pounded pumice of their own country.

Lavas are used as materials for the building of houses, not only by the inhabitants of Felicuda, but by those of all the other Eolian isles, each using those of their own island; and it is the practice, not only in the country but even the cities, to build with such stones as the environs afford, especially when they are mountainous. I therefore, wherever I went, constantly examined the materials of which the villages, towns, and cities through which I passed were built; which frequently afforded me a light and direction in my enquiries relative to the fossil substances of those countries.

On reviewing the different volcanic bodies which I met with at Felicuda, we shall find that they consist of glasses, pumices, tufas, puzzolana, and lavas with a base of shoerl, felspar in the mass, or horn-stone. The island at present exhibits no indication of subterranean fire, and even those signs which are uncertain and equivocal are wanting; such, for instance, as warm springs.

In the various excursions I made, I was particularly attentive to observe if by accident I should meet with any body not volcanized, and found one only of this description. This was a piece of detached granite, lying on the shore near the Grotta del Bov Marino. Its elements were of the most common kind; mica, felspar, and quartz. The mica was partly black, and partly white and silvery; both forming groups in which the black predominated. The quartz was in small semi-transparent masses, of a vitreous and brilliant fracture, soft to the touch, and of a colour between a blue and a white. The felspar, which in quantity exceeded the two other principles, and therefore must be considered as the base of the stone, was in small masses of unequal surface, lamellar in the fractures, transparent in the angles, and of a changeable milky whiteness. Neither of the three principles has a determinate form of crystallization. I think I shall not be mistaken if I assert, that this granite has not suffered the action of the fire. In fact, a continuance of a quarter of an hour in the furnace produced in it so great an alteration, that every part of it was sensibly changed. The mica became pulverable, the quartz extremely friable and full of cracks, and, losing its transparency and vitreous brilliancy,

became entirely white. The felspar likewise contracted a considerable friability, losing at the same time its changeable colour, and becoming whiter. It is not therefore extraordinary that a slight blow with a hammer should now break this stone into small pieces; though before it would only strike off at most a single fragment. When exposed to the furnace for several days successively, the quartz and mica did not fuse; and the felspar only exhibited at the angles, a beginning of fusion, which made it appear as it were unctuous. This experiment is perfectly agreeable to many others which I made in the furnace on the granites treated of in Chap. XII. We must therefore conclude, that this piece of granite was thrown out untouched from some volcano in the island; or, which appears more probable, that it is adventitious to it; for it is to be observed, that it was not found in the interior part of the island, but on the beach, where it had been beaten, and had its corners smoothed by the waves. Were I to indulge conjecture, I should incline to suppose it might have been brought by the sea from Capo Melazzo in Sicily, or that vicinity, which is only fifty-four miles distant from Felicuda, and where immense masses of similar granite are found*.

CHAP. XVIII. — ALICUDA.

Danger to which the author was exposed, in a tempest, on his passage from Felicuda to Alicuda.—Pumices and glasses found in the latter island.—Examination of the coast of Alicuda.—Several rocks formed of detached globes of lava.—Enquiries relative to the origin of these globes.—Confirmation of the uncertainty of any opinions formed relative to the greater or less antiquity of lavas, from the more or less sensible decomposition they may have undergone.—Isolated masses of porphyry, which exhibit no signs of having been attacked by volcanic fire.—Lavæ of another kind.—Shoerls of a greenish blue colour contained in all these lavas.—The coast of Alicuda more rugged and threatening than that of any other of the Eolian isles.—No mouth of any ancient crater in the sides of the island.—The appearance of a true crater found only at the summit.—Lavæ in the interior part of the island similar to those of the shores.—Improbability that Felicuda and Alicuda once formed a single conical mountain, the side of which has been opened and separated by the sea, as M. Dolomieu has supposed.—Reasons for believing that each was originally a separate island.—These two islands no longer manifest any signs of actual fire.—The silence of the ancients relative to their fiery eruptions, a proof that they must have long ceased to burn.

ON the 13th of October, at sun-rise, I left Felicuda, in a small bark, with four rowers, which was steered by the parish-priest of Felicuda, who had the character of a skilful seaman. We failed before a moderate east wind: the sky was clear, the sea smooth, and we flattered ourselves we should soon reach the place of our destination, as the distance between these two small islands is not more than ten miles. But scarcely were we half way, when the wind began to increase so that we were obliged to reef our sail, which it was dangerous to carry full; yet still we made more way than before; and the wind blowing with greater violence, and driving us rapidly towards Alicuda, from which we were now not far distant, endangered our being shipwrecked on the shore. Bays or harbours are things unknown in this island, and our bark driving before the wind, it was to be feared, might soon dash against a rock, or run upon a sand-bank; and we had the

* See Chap. XII.

less hope of being able to avoid this danger, as our sailors, from unpardonable negligence, had not brought with them any anchor.

The sea, in the mean time, ran very high; and the waves, which would not perhaps have given much alarm to a large ship, were very formidable to our little vessel, which they broke over from side to side, and from stern to prow, whirling it round with their violence; while the danger of being wrecked continually increased by our approaching the island, notwithstanding all the exertions we could make with our oars to keep off it. Our sailors, however, did not entirely abandon themselves to despair, but consulted whether it would be less dangerous to yield to the violence of the waves, and endeavour to run the bark on some sand-bank joining to the shore; or, avoiding the island, to adventure out to sea, and commit themselves to the mercy of the winds.

In this desperate situation, we perceived five men hastily descending from the eminences of Alicuda, and approaching the shore, which they quickly reached; when one of them called to us in a voice which might be distinctly heard notwithstanding the noise of the waves, advising us not to be terrified, but to endeavour to keep where we were, and he would exert his utmost efforts to deliver us from the danger by which we were threatened.

This person, as I afterwards found, was the parish-priest of Alicuda, who perceiving from a distance the situation in which we were, had hastened with four of the islanders to give us assistance. He had brought with him a strong pulley, which, when fixed on the shore, was to receive a rope, by means of which the vessel might be drawn upon the land. But to effect this, it was necessary to form a kind of inclined plane on the shore, along which the boat might be drawn; which was soon done, with the spades and shovels that had been provided for the purpose.

We were not more than fifteen feet from the land, and by incessantly plying our oars, made every effort to avoid approaching it nearer. We were obliged, at the same time, continually to bale the water out of the boat, to prevent its sinking; which was the continual employment of myself and my servant, the sailors being entirely occupied in using the oars. A rope coiled up was now thrown on shore by one of the sailors, and, after two or three unsuccessful attempts, caught by the persons on the beach and passed through the pulley; while the sailor drew it tight, and fastened it to the prow of the bark. We now committed ourselves to the first wave that rolled upon the shore; and, the five islanders pulling the rope with all their force, we were drawn with the bark up the shelving declivity they had made: but the wave on its return dashing impetuously against the prow, drove us again into the sea; and so violent was the shock, that the rope broke, and we lost all hope of getting safe on shore. At this unfortunate and unexpected accident the good priest struck his hand against his forehead, from vexation and disappointment, and our consternation was extreme.

We had now resolved to keep off from the island, and brave the fury of the winds and the waves in the open sea, whatever might be the event: but from this we were dissuaded by these islanders, who assured us it was impossible so small and crazy a boat as ours should long resist the violence of the storm in the wide sea; but that it must either overset, or bilge and sink. They advised us rather to coast the island towards the north, where we might possibly find some small inlet, where we might be less exposed to the waves; promising us that they would proceed the same way along the shore, and afford us every assistance in their power. This advice we followed, and bearing up to the north, without standing far from the shore, in about half an hour met with a cavity in a rock which, from being winding, was not much exposed to the agitation of the waves. Into this we happily carried our bark without damage, and landed, with the assistance

became entirely white. The felspar likewise contracted a considerable friability, losing at the same time its changeable colour, and becoming whiter. It is not therefore extraordinary that a slight blow with a hammer should now break this stone into small pieces; though before it would only strike off at most a single fragment. When exposed to the furnace for several days successively, the quartz and mica did not fuse; and the felspar only exhibited at the angles, a beginning of fusion, which made it appear as it were unctuous. This experiment is perfectly agreeable to many others which I made in the furnace on the granites treated of in Chap. XII. We must therefore conclude, that this piece of granite was thrown out untouched from some volcano in the island; or, which appears more probable, that it is adventitious to it; for it is to be observed, that it was not found in the interior part of the island, but on the beach, where it had been beaten, and had its corners smoothed by the waves. Were I to indulge conjecture, I should incline to suppose it might have been brought by the sea from Capo Melazzo in Sicily, or that vicinity, which is only fifty-four miles distant from Felicuda, and where immense masses of similar granite are found*.

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of the worthy priest and the persons with him, towards whom I shall feel the warmest sensations of gratitude while life shall remain. He treated us when on shore with the utmost kindness and hospitality; and when I had presented to him the circular letter I had received from the bishop of Lipari, (in which I was warmly recommended to the parish-priests of those islands, who were requested to furnish me with every assistance necessary for my philosophical researches during my stay,) he redoubled his civility, offering to serve me in every manner in his power; and his whole conduct sufficiently evinced the sincerity of his offers.

It was not yet noon by some hours when we landed in Alicuda, but the fatigue I had undergone prevented my having any inclination to begin my researches that day; and the following night I slept in the bark, which had been drawn on shore; my deliverer (for so I may justly call the good priest of this island) having sent me a mattress and a coverlet to defend me from the moisture of the night, as I was too much fatigued to ascend to his habitation, which was situated half way up the mountainous island. He likewise hospitably invited me to share with him the provisions of his frugal table, and some bottles of excellent malmsey of Lipari, which revived my spirits and restored my strength.

I remained at Alicuda two days (the 14th and 15th of October), during which I sufficiently gratified my curiosity, and acquired a satisfactory knowledge of the nature of the island. The observation of the ancient Grecian philosopher is well known, who having been driven by a tempest on the coast of Rhodes, and with great difficulty reached the land, seeing certain geometrical figures traced in the sands, immediately exclaimed, *I perceive the vestiges of men*: I, in like manner, the moment I set foot on the shore of Alicuda and surveyed it, might have exclaimed, *I perceive the vestiges of fire*. These were the pumices, glasses, and enamels, which presented themselves to my view on the skirts and sides of Alicuda, and which it is unnecessary particularly to describe, since they entirely resemble those of Felicuda, and are found like them mingled with tufaceous substances.

Of the two days which I allotted to my researches in Alicuda, I set apart the first to examine its circumference by sea, the night preceding the 14th of October having been sufficiently calm to permit me to make the circuit of it in my boat without danger.

I shall here, therefore, specify the principal products I discovered during my circuit round the shore of the island, this being the part which, more than any other, must interest the philosophical naturalist. I shall not name the places where I found them, since two of the inhabitants who accompanied me were unable to assign any names by which they were known; the different parts of the shore of the island having in fact no fixed names: I shall only indicate their distances from the place whence I set out.

At the distance of forty paces from that part of the island which fronts the east, we begin to find, as we turn towards the north, entire rocks formed of globes of a blackish lava, with a petrosiliceous base, which, though porous, is heavy from the compactness of the solid parts, which have a little lustre, are very hard, and in their fractures affect the conchoidal figure; they move the magnetic needle at the distance of more than a line, and give sparks tolerably freely with steel. The petrosiliceous substance contains a few felspars, and a considerable number of shoerls. These globes of lava are of various sizes, some of them being a foot in diameter. They are detached, and are never found in strata, but only in large accumulated heaps.

To what cause can we ascribe the division of this lava, and its conformation in the manner described? I at first imagined that its figure might be the consequence of the agitation of the sea, when its waters reached to a greater height; as these accumulations
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of globes are now some poles above its level. In fact, in my maritime excursions round the other Eolian isles, and at Etna, I have frequently met occasionally with similar balls of lava, which clearly indicated that they had been rounded by being continually rolled by the waves of the sea, in the same manner as we find stones rounded in rivers. In the course of this work I have adduced several examples of this kind, even among the glasses and enamels of Lipari, which have taken a globose figure. But a more careful examination of these globes compelled me to change my opinion, on considering that the pieces of lava that have acquired an orbicular form from the agitation of the waters, are always more or less smooth on their surface; whereas these were rough all round—though their roughness, consisting in general of minute parts and points, must have been worn away by rubbing against any obstacle. I observed besides that these globes in many places had a shining and scoriaceous appearance, extremely similar to that of the pieces of lava incessantly thrown out by the volcano of Stromboli. I am therefore rather of opinion that they are pieces of lava that have been thrown out from a volcano in Alicuda, and taken a spherical form in the air, from their great softness, as similar phenomena may be observed in the products of other burning mountains.

About a mile and a half beyond the lava now described, proceeding still towards the north, we find a second, not in globes, but in an ample current, which falls like a cataract into the sea. It is of a petrosiliceous base, has the colour of iron, is siliceous, or rather vitreous in the fracture, and full of shoerlaceous crystallizations. Whoever has seen lavas which have lately issued from the mouth of a volcano, would imagine this of extremely recent date. On the surface it preserves that shining aspect, that freshness, which is peculiar to lavas that have not yet been exposed to the influences of the atmosphere. The specimens of it which I detached, might be taken for that scoria of iron which we find in the shops where that metal is fabricated. I have in my possession some pieces of the lava which was thrown from the highest crater of Etna in 1787, which I collected on the spot, and have described elsewhere *. These, with respect to the freshness of their appearance, are not distinguishable from the lava of which I now speak. Yet is the latter of an antiquity beyond our knowledge, for we have no record of any conflagration in Alicuda since history has been written. I have chosen to speak more at length on this peculiar property of the present lava, to prove, or rather to confirm what I have already proved, how uncertain are all conclusions relative to the greater or less antiquity of lavas, derived from the more or less sensible degree of decomposition which they manifest. Such conclusions may be well founded, when the lavas are of the same nature, and affected by the same intrinsic circumstances; since then those of a more ancient date must be most changed by time: but where their nature and qualities are different, one lava may be considerably altered in a few years, and even reduced to an earth, while another shall remain for ages perfectly preserved, and in the same state in which it was thrown out of the fire, of which the lava now described is an evident example.

At the distance of another full mile from the place whence I took my departure, the mountainous coast of the island becomes somewhat more level; and on this plain arise detached masses of porphyry, which shew no signs of having been touched, much less fused, by the fire. It is of a petrosiliceous base, of the colour of brick, affords sparks with steel, and is extremely compact, and without pores, except a few superficial vacuities, coated with a thin white crust of carbonate of lime, sometimes studded with crystals of the same kind. These small geodes, which have been produced without doubt

* See Chap. VIII.

by filtration, are decomposed in a few moments by the nitric acid, and dissolve with a strong effervescence. This porphyry, in its hardness, polish, and lustre, is not inferior to the Egyptian. Besides shoerls, it contains numerous cubical lamellar felspars, of a changeable whiteness.

When exposed to the furnace for a few hours it becomes black, and after a longer time fuses into a black, compact, and very smooth enamel, which sets in motion the magnetic needle, though it produced no such effect when it was porphyry. The felspars remain entire.

In this part of my circuit round Alicuda I have described two kinds of lavas, the one found in detached globes, and the other in a current; which, however, from the identity of their nature, may be considered as one only; both having for their base the petrosilex, and containing shoerls and felspars: they are therefore both porphyritic. And as the rock last described is a porphyry with a petrosiliceous base, it appears that they all three derive their origin from one common matrix, except that one portion of it has been subjected to fusion, and the other remained untouched.

A little beyond the plain above mentioned appear some tufas, which cover a long and steep declivity descending into the sea, and beyond the tufas we again meet with lavas forming broad currents. These lavas have the horn-stone for their base and their external characteristics are the following:

They are light, extremely porous, and therefore easily penetrable by water; they with difficulty give sparks with steel, which breaks off fragments at every stroke. They feel rough under the finger, and emit an argillaceous odour. They contain numerous felspars, which are conspicuous from their whiteness, on a dark red ground approaching to a black. Some shew a degree of calcination which they have suffered in the fire, and are in consequence easily crumbled. Others have suffered no injury; and the difference observable in them is rather to be ascribed to the difference of the nature of the felspars, than to their having suffered a greater degree of heat, the lava in which they are both incorporated appearing to have been equally affected by that agent.

Alicuda is about six miles in circuit, and I have as yet made the tour of only the one half. On completing it, however, I only met with lavas of the same kind with those already described, diversified by a few varieties that do not merit a particular description.

I have given some faint sketches of the appearance of the lavas in some parts of this island; but it would be impossible for me to give an adequate idea of the fearful wildness of the scenes which present themselves to the eye for two-thirds of this circuit. Among all the volcanized places I have visited, I have yet seen none so convulsed by subterranean fires, so torn and shattered, and so filled with accumulated ruins by the devastations of time and the sea.

In some places we find a lava extending for several hundred paces, which has been broken by the waves in such a manner as to form a rock surrounded by the water, abounding in craggy cliffs and precipices of a fearful height.

In others the lava descends perpendicularly from the most elevated summit of the mountain, and buries itself in the water, surrounded on the sides by projecting crags, and huge overhanging stones, which threaten every moment to thunder down into the deep.

Here the lavas do not form one continued body, but are composed of detached and loose globes, particularly dangerous to those who may attempt to ascend the mountain, as they roll from under and put in motion a great number of others, thus producing a destructive stony current. Even the large falcons, which frequent the highest summits of this island, if they chance to alight on these heaps of round loose stones, will often,

as I have myself seen, by moving one put others in motion, till bird and stones fall all together headlong into the sea.

In another place lavas are found, not of one kind alone, but a confused mixture of several, piled in disorder one on another to a prodigious height; and in many of them there is no part which does not threaten immediate fall and ruin.

Through the midst, however, of these mishapen rocks and horrid precipices are formed, I will not say roads or paths, but narrow winding gutters, by which we may ascend to a certain height; and through these I took my way, when from time to time I landed from my boat and went in search of the lavas I have described, and examined them on the spot. I was obliged, however, to advance with the greatest caution, as to have made a single false step would have been to have fallen headlong down a precipice. I could not but recollect the lines of Dante, in which he describes the laborious passage over the horrid crags and precipices of one of the abysses of his hell:

“ E prosequendo la solinga via
Fra le scegge, e tra rocchi de lo scoglio,
Lo piè senza la man non si spedia.”

“ And still along the solitary way,
Proceeding over rocks and precipices,
The foot without the hand no progress made.”

And though the fatigue in again descending to the sea might be less, the danger was equal, if not greater, from the unstable and slippery nature of these deceitful places.

Having completed the circuit of the shores of Alicuda on the fourteenth of October, I appropriated the next day to the examination of the interior part of the island. I could, however, only make my researches in the part which fronts the east and south-east; the remainder being inaccessible from the dreadful crags and precipices already mentioned.

When seen from the sea, on the south-east side, at the distance of two or three miles, this island has the appearance of an obtuse cone, but with a considerable incavation on one side. This incavation has no resemblance to a crater, and on a nearer examination we find it is only a lower part of the mountain. In fact, we perceive no marks of the mouths of ancient volcanos in the whole circuit of Alicuda; either because they have never existed there, or because all traces of them have been effaced by time or some other destructive agent. I have discovered the appearances of a true crater no where but in the highest part of the island, where there is a hollow, not very deep indeed, but about half a mile in circumference; and I incline to believe it to have been a crater, from finding there a group of lava diverging as from a centre over the body of the island.

I examined the lavas which cover the sides of this mountainous island, at least where I could reach them without danger, in the same manner that I did those which form the base or shore of it. I shall not describe them particularly, as it appears unnecessary, they generally having the petrosilex or horn-stone for their base, and abounding more or less, as usual, in felspars. Their external surface is covered with a yellowish and friable coating, originating in a beginning decomposition. The deep fractures which we find in many parts of them enabled me to perceive that they must have flowed at different periods, forming beds or strata one above the other, as is frequently observed in other volcanized countries.

M. Dolomieu was of opinion that “Felicuda and Alicuda had once formed a single conical mountain, which had been opened and separated on one side.”

This is certainly not impossible, but I must say it appears to me extremely improbable. If the sea, or any other violent agent, had divided this conical mountain into two parts, it is difficult to conceive that no record or tradition should remain of this convulsive separation. On the contrary, when I attentively examine and consider these two islands, they have every appearance of being each a distinct island, like Stromboli, Saline, and the others. Both likewise have on their highest summits the vestiges of their primitive crater, that is, of that which by its eruptions has given birth to its respective island. The lavas likewise which have flowed from these summits, as from central points, and enlarge and extend as they take their course down the sides of the mountain towards the sea, seem clearly to prove that each was a complete island in itself; nor can I doubt but the French naturalist, had he visited these islands themselves, would have been of my opinion. He only viewed them from the highest part of Saline, that is, at the distance of five-and-twenty miles from Felicuda, and five-and-thirty from Alicuda. At that distance they seem very near to each other; so that M. Dolomieu, judging from appearance, supposes Felicuda to be only five miles from Alicuda, though it is in reality twice that number. As therefore at Saline they appear to be so little distant from each other, nothing was more easy than to imagine that they once formed a single mountain, which, either by earthquakes, the violence of the sea, or some other unknown cause, had been broken and divided into two parts, an arm of the sea taking possession of the intermediate space.

From the summit of Saline he likewise estimated Alicuda to be only twenty miles from Cefalu, on the coast of Sicily; and, in fact, when I was on the same eminence, these two places appeared to me to be very near, and Felicuda seemed almost to join to Alicuda; yet it is certain that the distance between Alicuda and Cefalu exceeds five-and-forty miles. It is well known that this optical illusion takes place with respect to any object seen at a distance, either by land or water. Nothing happens more frequently to the traveller than to find that two rocks, mountains, or buildings, which when viewed at a distance he had imagined to be extremely near to each other, and almost to touch, are in fact separated by an interval of several miles.

The volcanic materials of Felicuda, as has been already seen in the preceding chapter, consist of lavas with a horn-stone base, shoerl, and felspar; not to mention pumices, tufas, and glasses. The latter three products are likewise found in Alicuda, but the greater part of the lavas have the petrosilex for their base.

Notwithstanding these two islands exhibit indubitable characters of fire, no signs of it in a state of activity are at present to be seen. It may indeed be conjectured that some remains still exist in the internal parts of Felicuda, from a warm spring, emitting the smell of sulphur, which issues from the northern side of a rock, a little above the level of the sea.

I shall here collect the notices that have been left us by the ancients relative to Felicuda and Alicuda, as they are extremely few and brief. We know that their names were Phenicusa and Ericusa (Φοινικουσα and Ερικουσα), which are said to have the following derivation: Aristotle, speaking of Phenicusa, or Felicuda, as it is at present called, says, "it received that name from its abounding in palm-trees"—φοινίξ, in the genitive φοινίκος, being the name of that tree in Greek*. Ericusa, or Alicuda, we are told by the author of the epitome of Stephanus, was so named from the *erica* or heath, which there grows plentifully†. Strabo likewise informs us that these two islands derive their

* Εν μια των Αιολῶν προταχυροῦμενων νησῶν πολλὸς τε φασὶ γενέσθαι Φοινίκων, οὗτι καὶ Φοινικῶν καλεῖσθαι.

In Mirandis.

† Ερικουσα, μια των Αιολῶν νησῶν, ἀπο φύω καλῆς μιν.

names from plants *. At present, however, though heath is not wanting in Alicuda, Felicuda does not afford a single palm-tree, nor is there one to be found in any of the Eolian isles.

But neither the above-cited authors, nor any other ancient writers, make the least mention of any conflagrations in these two islands; probably because, though in their time, Stromboli, Vulcano, and even Lipari threw out fire, Felicuda and Alicuda, as we have seen was the case with Didyma and Euonimus, were entirely extinguished.

CHAP. XIX. — OBSERVATIONS WHICH HAVE AN IMMEDIATE RELATION WITH THE VOLCANIZATION OF THE EOLIAN ISLES. — ENQUIRIES RELATIVE TO THE ORIGIN OF BASALTES.

Methods and instruments proper to raise stony bodies from the bottom of the sea surrounding the Eolian isles.—The bottom of the channels between Vulcano, Lipari, and Saline, entirely volcanic.—The same observable of the roots of the Eolian isles below the water.—Gravel and volcanic sand in the channel that divides Panaria from Lipari.—The rocks in the middle of the channels between Saline and Felicuda, and between Felicuda and Alicuda, analogous to those of the same islands, but probably primordial.—Decisive proofs deduced from these observations, that the shoerls and crystallized felspars of the lavas have not been taken up by them when in a fluid state, nor formed within them at the time of their congelation.—Confirmation of these proofs.—The Eolian isles placed in a direct line from east to west.—A similar direction observable in some islands and volcanic mountains in other countries.—Not improbable that all the eight Eolian isles were formed at the same time, and perhaps very suddenly, with respect at least to their first rudiments.—Explanation of the cause why islands and burning mountains are sometimes produced disposed in a right line.—Materials of the Eolian isles for the most part porphyritic.—Analysis made by the author, proving that the red Egyptian porphyries have not for their base the petrosilex, but rather the horn-stone.—Enquiry whether the vitrifications found in such prodigious quantities at Vulcano and Lipari, are found in similar quantities in any other volcanic countries.—Uncertainty of this from the want of accurate mineralogical descriptions of the greater part of volcanos.—The accounts given of them usually general and wonderful, but little instructive.—Volcanic glass found in Iceland, but by no means in sufficient quantities to form mountains.—No notices of vitrifications in the volcanos of the islands of Ferro, nor in those of Norway and Lapland.—Little or no glass in the volcanized countries of Germany and Hungary.—Nor in the extinguished volcanos of France.—The quantity of vitrifications at Vesuvius, and several other parts of the Neapolitan territory, more considerable.—Scarcely any at Mount Etna, or the volcanic mountains of Padua.—A more extensive tract of pumices found perhaps in no part of Europe than in the island of Santorine.—This island, however, affords no glass.—Great scarcity of vitrifications in the three other quarters of the globe.—Conclusion: that Vulcano and Lipari offer a greater abundance of glasses than any other volcanized part of the world; but that Santorine exceeds them in the quantity of pumices.—Enquiries relative to this scarcity of vitrifications in volcanos, whether burning or extinct.—It seems to proceed less from the quality of the stones acted on by the volcanic fire, than from the inefficacy of that agent to produce vitrification.—A successively stronger degree of heat requisite for a stone to pass from the state of lava into pumice, and

* Τὰν δὲ λουτὰν Ἐ. μὲν καὶ Φ. οὐκ ἔστιν ἀπὸ τῶν φῦτων κικλῆσθαι. Lib. vi.

from that of pumice into perfect glass.—Elucidation of the cause why some volcanos produce pumices, but not glasses.—The formation of pumices hitherto not attainable in our furnaces.—Black the natural colour of pumices, which are rendered white by external causes.

Enquiries relative to basaltes.—These originate in the humid way, when the word basalt is understood in the sense in which it was used by the ancients.—The columnar stones which, from their prismatic configuration, resemble the basaltes of the ancients, originate according to circumstances in the humid or the dry way.—Proofs of their origin in the dry way in Vulcano and Felicuda.—Nature, in the fissile kingdom, produces crystals as well by the dry way as by the humid.—This exemplified in the generation of basaltes.—An abuse of analogy to conclude from it one common origin of basaltes.—When examined detached, they frequently bear no peculiar character of their origin, which must be determined from local circumstances.—Enquiry whether basaltiform lavas have become such by a sudden condensation within the sea.—Proof which shew, first, that many basaltiform lavas have assumed this symmetrical configuration on coagulation in the waters of the sea; secondly, that in others it has taken place only by congelation in the air; thirdly, that very numerous lavas have proved refractory to this figure, both within the sea and in the air.—The property of assuming a prismatic figure appears in many lavas not to depend on their being of a particular species, nor on their compactness and solidity, but on extrinsic and adventitious circumstances.—These circumstances indicated, with an explanation in what manner, according to their presence or absence, lavas frequently assume a prismatic form in the air, while others remain irregular within the sea.

THE form, size, and structure of the Eolian isles, the different materials of which they are composed, and the primordial rocks from which these are derived; the fires which still burn in some, and the phenomena and changes which accompany them; with the comparison between the present conflagrations and those of ancient times, constitute the principal objects to be considered in writing the volcanic history of such a country. And though we have already employed nine chapters on these subjects, we conceive the candid reader will not accuse us of extreme prolixity; both because we have had to treat of seven islands, and because our object was to write the lithology of this ancient and celebrated country. The present chapter, we flatter ourselves, will, in like manner, be acceptable to the enquiring naturalist, as it contains various observations and reflections which have a direct and immediate relation to the deflagrations of the Eolian isles.

We have already observed and described these islands from the summit to the base, which buries itself in the waters of the sea. But it was impossible to examine their internal part in the same manner as the external; though the importance of such an examination merited that every effort in our power should be exerted to effect it. It would be equally interesting and instructive to ascertain the nature of the bottom in those tracts of sea which surround these islands, and separate them one from the other. I shall therefore here relate what I observed with respect to this subject, and describe the methods and instruments to which I had recourse to make my observations.

Where the depth was not great, I found extremely useful the large tongs, mentioned by Donati*, furnished with strong pincers, fixed to one or more bars, which by means of a rope may be closed or opened at pleasure, and thus take hold of and bring up any substances from the bottom. But where the water was deep, I found it more convenient to employ one of those nets which fishermen use to envelop, and tear from the rocks, coral and other subaqueous bodies. These nets I easily procured, as coral is fished

* Saggio sopra la Storia naturale del Mare Adriatico.—Essay on the Natural History of the Adriatic Sea.

up on these coasts; of which fishery I shall treat further in a subsequent part of this work.

Employing, therefore, these two instruments, the following was the result of my observations, which were not made on pieces that lay detached on the bottom, but on such as formed a continued whole with it, as was evident from the recent appearance of the fractures where they were broken off.

In the channels which divide Vulcano from Lipari, and Lipari from Saline, the bottom is entirely volcanic, and affords products of the same species with the two shores. The same is observable of the foot of the islands, which foot in some situations descends perpendicularly; but in others has a considerable declivity, and thus enlarges the circuit of the island. The pieces of lava which I was here able to detach, did not differ from those of the shore, which I have already described.

But at a greater distance between island and island this was not the case. I made my experiments in three different places. The first was between Lipari and Panaria; but here, the water being very deep, I did not succeed in my attempts to bring up any stony body from the bed of the sea, but only testaceous and crustaceous animals alive or dead enveloped in sand and gravel, and forming a species of crust more or less thick. The sand and gravel, it is to be observed, were volcanic.

The second place in which I made this experiment was between Saline and Felicuda, and the third between Felicuda and Alicuda, in both instances, at the point of greatest distance as nearly as the eye could measure, between the two islands. In each of these situations, besides drawing up from the bottom portions of the before-mentioned crust, I likewise obtained several stony fragments, which, from the great force it required to separate them, and the recent appearance of their fractures, evidently had an immediate communication with the solid and rocky bottom. The whole number of these fragments, great and small, was eleven: of which four were brought up between Felicuda and Alicuda, and seven between Saline and Felicuda. The base of five * of them was a petrosilex almost opaque, affording sparks with steel, compact, of a grain little scaly, but fine; the colour of two of these pieces was a lightish blue, and that of the three others a grey. The base of the seven other pieces was a dark green horn-stone moderately hard. None of them differed in their base, and shoerlaceous and felspathose crystallizations, from several volcanic lavas of the Eolian isles.

These eleven pieces, however, excited in me a strong suspicion that the rocks from which they were detached had not been exposed to the action of fire. The particles of the petrosilex in them were more closely united, had greater hardness, and a more siliceous appearance, than in the same stone of those islands, which has been subjected to fusion. In like manner, the lavas, of a horn-stone base usually have somewhat of a fibrous nature, and a thinness in their texture which is not seen in the stone of the same kind. These two rocks, therefore, appeared to me to be in their natural state.

I consider these experiments as very instructive with regard to the origin and formation of these islands. We may conclude from them: First, That the part of the islands which is buried under the waters of the sea, has suffered the action of the fire in the same manner with that which is exposed to the eye of the observer. Secondly, That Vulcano, Lipari, and Saline form one continued group of volcanized substances, which, at first, might probably have one common central conflagration that dividing into three branches, and affording a passage to three distinct mouths, gave birth to three islands,

* The author must here have committed some mistake, as he, immediately before said the whole number of pieces was eleven, and now mentions *five* and seven. T.

which conflagration, by subaltern and successive ramifications, and ejections of new matters, afterwards increased in extent. No sensible remains, indeed, of such a fire are at present discoverable in the internal parts of Saline, nor are any observable in Lipari, its whole efficacy appearing to be confined to Vulcano. Thirdly, That Alicuda, Felicuda, and Saline do not appear to have any volcanic communication with each other, at least in the parts that form the bed of the sea, which separates these three islands from each other; since those parts, as far as the eye can perceive, shew no signs of the action of fire. Fourthly, That these three islands, and perhaps likewise Stromboli, are situated in the vicinity of analogous but primitive rocks the perfect resemblance of the shoerls and felspars in these rocks, both in those that have suffered change from the fire and those that have not, is a demonstration that these crystallizations have not been taken up by the lavas when they flowed in currents nor formed in them at the time of their congelation,

From the very beginning of this work, I have adduced facts of the same nature, which I have the satisfaction to confirm by the present; and which become of the greater importance, as I have lately read that a naturalist of eminence inclines to believe that the shoerls of lavas are formed when the latter condense and become cold, because then the homogeneous molecules separate from the heterogeneous, and unite by affinity in small crystallized masses. This ingenious theory is not only contradicted by the observation made above, but appears to me not to accord with the usual operations of Nature. Were it well founded, I can perceive no reason why the shoerls in lavas should not re-appear after they have been fused within them in the furnace, and being removed into a cold place, have acquired their former hardness. But though I made experiments with fire on some thousands of pieces of lava, not one of them reproduced its shoerls, though many were continued a long time in a state of fusion, and afterwards suffered quietly and slowly to cool and consolidate; which two circumstances are known to favour the formation of crystallizations. Shoerls were indeed sometimes found in the lavas, after fusion, when cooled and hardened; but these had proved refractory to the fire, as appeared on exposing them again to the furnace detached from the lava.

The eleven pieces of primordial rock broken from the bottom, exhibited in the furnace the same changes with their congenerous lavas exposed to the same fire: the felspars, however, remained refractory.

The Lipari islands extend in a right line from east to west the distance of about fifty miles, except that Vulcano makes a small angle. Stromboli is the first to the east, and Alicuda the last to the west. This is not the only instance of volcanos having produced islands, or rather mountains, arranged in a rectilinear direction. We find an example of this in the Moluccas, which are the produce of subterranean fires, and placed one beyond the other in a right line. When, in 1707, a new island was thrown up by a submarine volcano, in the Archipelago, near Santorine, other small islands arose from the sea near it, to the number of seventeen in a right line, forming, as it were, a long chain of black and dark rocks, which visibly increased in dimensions and height, and, approaching each other, at length united, and, joining that which first arose from the water, formed one single island*.

Another memorable instance of this direction of volcanic mountains (for islands are in fact only mountains buried in part under water) is the production of seven lesser mountains by the eruption of Vesuvius in 1760; the account of the formation of which,

* Vallinieri Oper. fol. i. ii.

as it may throw some light on that of the Eolian isles, I shall here give, from the accurate relation of Professor Bottis, an ocular witness.

After repeated concussions of the earth, which were felt fifteen miles round Vesuvius, the sides of the fiery mountain opened in the territory of the Torre del Greco, and fifteen volcanos appeared, eight of which were soon after covered by a torrent of lava, which rushed from one of them; the other seven remaining entire, and incessantly ejecting from their mouths vast quantities of ignited substances, which, falling almost perpendicularly around the volcanos, produced, in the short space of ten days, seven small mountains, of various heights, disposed in a right line. During these ejections, the noise which accompanied them sometimes resembled that of violent thunder, and at others the discharge of a number of cannons. Several of the burning stones, even the largest, were thrown to the height of nine hundred and sixty feet, and some fell at a considerable distance from the mouth whence they were thrown. These eruptions shook all the neighbouring country, and the roarings of the mountain were dreadful to the inhabitants. After the tenth day the eruptions ceased, and the newly-formed mountains, gradually cooling, permitted a nearer approach; when some were found to have at their summit a cavity resembling an inverted funnel, and others a simple hollow of greater or less depth.

The production of the Eolian isles being anterior to the records of history, we know not whether this took place at one time, or in different periods. The relation, however, just cited, of the origin of the seven Vesuvian mountains clearly proves the possibility of their being produced at the same time. It also proves, that the whole eight might be formed in no long space of time, with respect at least to their first rudiments, it having been seen that they have received successive additions.

We also evidently perceive that the inflammable substances generative of the Moluccas in Asia, of the chain of islands at Santorine, of the Vesuvian mountains above described, and of the Eolian isles, have formed a direct subterranean zone incomparably longer than broad. This phenomenon may be explained by recurring to the clefts and fissures perpendicular to the horizon, existing in many places within the earth, as well in soft substances as in the more durable and solid; within which clefts should substances proper for the production of volcanos be found in abundance, and become inflamed, in separate heaps, burning mountains would arise, in a direct line, and more or less large, according to the quantity of the ejected matters.

From the particular descriptions of the islands of Lipari, we have seen that the combustible substances which have produced them have sometimes been contained within granite, as at Panaria and Basiluzzo, but for the most part within rocks which have for their base the petrosilex, the horn-stone, and the felspar. It likewise appears, from the observations made at Stromboli, that, even there these burning substances have their seat in the horn-stone rock, though, from the size of the island they have produced, they must undoubtedly be buried at an immense depth. If we would simplify the facts relative to the materials of all these islands, we shall find that they are for the greater part porphyritic; as are likewise some of those submarine tracts, apparently not touched by the fire, and placed among them, as has been shewn above*.

When I compared the effects of the furnace on volcanized porphyritic rocks with those it produces on the natural, I mentioned some red Egyptian porphyries, the base of which I believed to be horn-stone rather than petrosilex, relying on the analyses of Bayen, as related by Delametherie, of an Egyptian porphyry of the same colour, and

* See the Note at page 81, Chap. XI. in which I have spoken of the essential characters of porphyry.

similar to those on which I made my experiments *. But not having then been able to analyse them from want of time, I determined to do it afterwards, and give an account of the result, in another part of this work, when I should again have occasion to speak of this species of volcanic rock. I shall here give this analysis, which affords a confirmation that the base of these porphyries is not petrosilex, as they contain magnesia, which is not found in that stone. From this circumstance, and the nature of their constituent principles, their base ought rather to be called a horn-stone, of the nature of which it at least participates. This analytical observation is likewise here very opportune, as it is an additional proof that I have properly called porphyritic the lavas with a horn stone base, and containing felspars, which are so numerous in these islands.

The red Egyptian porphyries which I analysed are of two species: the first has been already described; the second differs only in its colour being of a less lively red, and in the abundance of its felspars. It is evident, that to render this experiment accurate the substance of these two stones should be first freed from the shoerls and felspars which they contain.

First Species.

Silex, somewhat reddish	-	80
Alumine	-	7
Lime	-	3
Magnesia	-	2
Iron	-	6

Second Species.

Silex	-	81
Alumine	-	7½
Lime	-	4
Magnesia	-	2
Iron	-	4½

Besides the porphyritic lavas with which the Eolian isles abound, we have seen that they contain great quantities of tufas; and that Stromboli is distinguished from the other islands not only by its volcano, but by the beautiful specular iron it affords; and Lipari by its chrysolites and zeolites, but still more by the prodigious quantities of pumices and glasses which it contains. I cannot, indeed, reflect on those enormous masses of vitrifications, without renewed wonder; which has been still more increased by the discovery, by means of the forceps and coral net, that these vitrifications are continued from Lipari, till they join those of Vulcano, which on the north and north-east side abounds in pumices, and enamels, and glasses. The vitreous substances, therefore, of this island, and those of Lipari, which, as has been said, occupy about two-thirds of the latter, compose an accumulation of glass, not less than fifteen miles in circuit. It is impossible to attend to this stupendous phenomenon without feeling our curiosity excited to know whether it be peculiar to these islands, or found likewise in other volcanized countries. But satisfactorily to answer such a question, it would be requisite that we should be acquainted with the volcanic mineralogy of all the volcanos in the world; not only those at present burning, but those extinguished, which are infinitely more numerous; in the same manner as we are with that of Vivarais and Velay, the islands of Ponzo, Vesuvius, Etna, the Eolian isles, and the mountains of Old-Brissach, by the labours of Fau-

* See Chap. XI.

jas, Gioeni, Dolomicu, Dietrich, and myself. Of such a mineralogy, however, we are entirely destitute. The greater part of those who, either by chance, or from curiosity, have viewed burning volcanos, have only described in their relations the most common and general phenomena, less adapted to increase the knowledge than to amuse the imagination of their readers, and excite their wonder.—Shocks and undulations of the earth; the sea in commotion, and raging without a tempest; here retiring and leaving its shores dry, and their inundating vast tracts of land; subterranean thunders, and roarings in the air above; the sun disappearing in thick darkness at noon; whirlwinds of smoke, ashes, and flame, bursting from the yawning gulf; burning stones hurled towards heaven, and falling in a fiery hail; torrents and rivers of liquid lava, sulphur and bitumen, pouring down on the valleys below, and carrying terror, desolation, and death; islands, now suddenly produced by submarine eruptions, and now torn from their foundations, and swallowed up by earthquakes; these compose the usual descriptions of volcanos, which, though they may not be useless when the facts are faithfully stated, and not magnified by the imagination of the narrator; yet they commonly want one essential requisite; that is, lithological descriptions of the bodies ejected by these burning mountains. As glass and pumices, however, are known even to those who are unacquainted with this part of natural science, we may, with certainty, or at least, with the strongest probability, conclude, that they are produced by the volcanos in the descriptions of which we find them expressly mentioned as making a part of the ejected matters, and that they are not produced when not mentioned. Thus in Iceland, the greater part of which Iceland is only an accumulation of volcanos either extinct or active, it is certain, from the accounts of travellers, that numerous glasses are found to which the name of Icelandic agate has improperly been given, only because they have the lustre and beauty of that stone. The present eruptions of this island, likewise, not unfrequently contain pumices; but no person has ever asserted that there are entire mountains of these stones, or of glasses.

The islands of Ferro are considered as volcanic, and produce the famous zeolites, mixed, as it is said, with lava; but as yet we know nothing more of them. The minute account of each of these seventeen islands published by Jacobson Debes, in which no mention is made of the vitrifications, authorizes us to conclude they do not exist there.

Norway and Lapland have their volcanos, which from time to time burst forth in fearful eruptions according to the accounts of Pennant and others, who, however, give us no further information.

Leaving these cold regions, and passing to Germany and Hungary, we find some tracts of these countries that have likewise been subjected to subterranean conflagrations, which, however, have produced no vitrifications, or scarcely any. "I have sought in vain the black agate of Iceland, and the true pumice," says the above cited Baron Dietrich, in his long and circumstantial Memoir relative to the volcanos near Old-Brisach.

Proceeding to a milder climate, and approaching nearer to our own country, we find that the extinct volcanos of France afford no pumices or glasses; which assertion I can make on the authority of M. Faujas, who has written so well concerning them, than which one more unquestionable cannot be adduced.

It is not the same with Italy; the country in which fire has principally extended its empire. The Neapolitan territory peculiarly abounds in pumices, enamels, and glasses, as appears in the islands of Ponza, at Herculaneum, Pompeii, Miseno, Monte Nuovo, the Rock of Burnt Stones, Procida, Ischia, and the valley of Metelona*. Even in our

* See Chaps. IV. V. VI.

times Vesuvius has ejected similar bodies; but, with respect to Etna, its fires rarely produce the slightest vitrification.

The only place in Europe, which, in the abundance of its pumices, can equal, or perhaps surpass Lipari, is the island Santorine. On this subject we may consult Thevenot and Tournefort, two intelligent travellers, who at different periods examined this island, which has not hitherto, to my knowledge, been considered by volcanists in this point of view.

The former, who visited Santorine in 1655, observes, that "many of the inhabitants live in caves made under the earth, which is extremely light, and easily dug into, as it consists entirely of pumices." He afterwards relates a fact, which has a particular relation to our present subject, since it teaches us in what manner these light stones may be thrown up, immediately by the sea, in volcanic eruptions. His account is as follows:

"About eighteen years ago, on a Sunday night, a violent noise began to be heard in the port of Santorine, which was likewise heard even to Chios, distant more than two hundred miles, and was thought to be occasioned by the Venetian fleet having engaged the Turks; in consequence of which great numbers of people got upon the highest places early in the morning to be spectators of the battle; and I remember the Reverend Father Bernardo, a venerable man, perfectly deserving credit, told me he was one among the number of those who were so deceived, imagining they heard a violent cannonade. They could however see nothing. In fact, this noise was caused by a fire kindled in the earth, under the harbour, the effect of which was, that from the morning to the evening a vast quantity of pumices rose from the bottom of the sea, with such violence and noise as to resemble repeated discharges of cannon, and so infected the air that several persons died at Santorine, and many lost their sight, which they did not recover till some days after. This infection extended as far as the noise which had preceded it had been heard; since not only in this island, but at Chios and Smyrna, all the silver became red, whether kept in coffers or in the pocket; and the religious who resided there told me that all their chalices became red. After some days the infection ceased, and the silver returned to its former colour.

"The pumices which were thrown up covered the Archipelago in such a manner, that for some time, when certain winds prevailed, the harbours were so blocked with them, that not even the smallest vessels could get out till a way was made for them by removing the pumices with long poles, and they are still seen scattered over the whole Mediterranean, though in a small quantity*."

Tournefort, after having remarked from Herodotus that Santorine was once called *Καλλίστη*, or "the most beautiful island," adds, that "its ancient inhabitants would not at present know it, since it is covered with pumices, or, more properly, is a mine of those stones, which may be cut into great square blocks, as other stones are cut in the quarries†."

According to this traveller and to Thevenot, Santorine is thirty six miles in circuit; whence it appears what a prodigious accumulation of pumices there must be in this island and the adjacent sea. It merits notice, however, that neither these two travellers, nor others who have written of Santorine, make the least mention of glasses of any kind; we may therefore venture to affirm that the subterraneous fires have there never produced them.

If from Europe we pass to the three other quarters of the globe, we shall find in each a great number of volcanos, which it would be superfluous to enumerate particu-

* Voyages de M. de Thevenot, Prem. Part.

† Voyage du Levant.

larly, such an enumeration having already been made by Faujas, Buffon and others. I shall only mention those which afford products that have relation to our present subject.

We read that the island of Ternate in Asia throws out a considerable quantity of pumices, as does likewise one of the numerous volcanos of Kamschatka.

As to those of Africa, we have but very imperfect accounts of them, with the single exception of the peak of Teneriffe, one of the loftiest of volcanos; which, with respect to its situation, height, form, and crater, and the hot fumes which issue from it, has been accurately described by the Chevalier Borda. But it were to be wished that we had a more complete description of the materials of which it is composed; as the French traveller only tells us that they are "sand, black and red calcined stones, pumices, and flints of different kinds *."

It admits of no doubt that the highest mountains of America, as Chimborazo, Coltopaxi, Sangai, Pichencha, &c. form a chain of burning volcanos, the largest existing in nature. We are indebted for the accounts we have of them to M. Bouguer; but these are such as only tend strongly to excite our curiosity without gratifying it. With respect to what relates to our present enquiry, we only learn from this writer, that "some mountains in the vicinity of Quito are composed entirely to a great depth of scoræ, pumices, and fragments of burnt stones of every size †." As to volcanic glasses, he does not make the slightest mention of them; though it is well known that the famous gallinaceous stone, which is universally acknowledged to be a most beautiful American volcanic glass, of a black colour, is found in Peru, and that, according to M. Godin, there is a mine of it, several days journey from Quito.

If we now consider those parts of these imperfect accounts which relate to glasses and pumices we shall find, with respect to the former, that the much greater part of volcanos produce none, and that those which do produce them, as in the Neapolitan territory, Iceland, and Peru, are by no means to be compared in this respect with Lipari and Vulcano. The same may be asserted of Alicuda and Felicuda, the glasses of which, though abundant in many parts of those islands, are only found in flakes and fragments. These observations might likewise be applied to the pumices, did not the immense quantity of them in the island of Santorine equal if not exceed, that of the two Eolian islands above mentioned.

If we consider the volcanos known to us under one general point of view, we shall find that, though they have changed into lavas an infinity of rocks, by which they have produced mountains and islands very considerable both in number and dimensions, it is very rarely that they vitrify the substances exposed to their fires. Reflecting on the immense quantities of vitrifications at Vulcano and Lipari, which are almost all derived from felspars and petrosilex, the idea suggested itself to my mind, whether so great an abundance in these two places, and so great a scarcity in others, might not be attributed to these stones being here extremely abundant, and very rare elsewhere. But this supposition does not accord with fact; as we have seen in many other volcanic tracts, which I have described, and shall describe when I come to speak of the Euganean mountains, that both these stones may be changed into lava without that lava exhibiting the slightest appearance of glass. On the other hand, we have shewn that, besides felspar and petrosilex, many pumices have for their base the horn-stone and asbestos, and many granite, as M. Dolomieu has observed. I am therefore of opinion, that the cause which has produced them should rather be sought in the volcanic fire, which rarely has sufficient activity to vitrify the stones and rocks on which it exerts its power; though I

* Voyage en diverses Parties de l'Europe.

† Acad. Royale des Sciences, 1774.

grant that the petrosilex and felspar are more adapted to this vitrification than other stones. To produce a lava, a certain degree of heat is necessary; and a still greater to convert it into pumice. The lavas, at least those of the compact species, usually preserve the grain, hardness, and sometimes the weight and colour of the primordial rock; but the greater part of these external qualities disappear in the pumice, from the stronger action of the fire. This must operate still more in glass, in which the homogeneity and fineness of the paste efface every trace of its primitive texture.

These gradual transitions of lava into pumice, and pumice into glass, I have several times observed, and indeed have already described, in the same volcanic piece. It has also been observed, that a lava frequently passes immediately into perfect glass, which must be caused by a sudden heat, greater than that required to change it into pumice. This theory satisfactorily explains why some volcanos produce pumices, but never glass; as may be remarked of Santorine. Their fires are only sufficiently powerful to generate pumices, but not to produce glass; an observation applicable to the prodigious eruption from the sea described by Thevenot. On the contrary, at Rotaro in Ischia, at Vesuvius, and other parts of the Phlegrean Fields, as also at Vulcano, Lipari, Felicuda, and Alicuda, glasses are found mixed with lavas; which shews that the fire has acted unequally in those places. It is to be remarked, at the same time, that the heat requisite for vitrification is not of the most violent kind, as I have shewn in Chap. XVI.

We must however observe, that as the production of compact lavas is a secret which Nature has hitherto reserved to herself; since we are unable to imitate them with our common fires; so also are we ignorant of the precise causes of the formation of pumices. Among some thousands of fusions which I have made in the furnace, both of lavas and primordial rocks and stones, those likewise from which pumices are most frequently produced as petrosilices and felspars, I never obtained a product which could be said to possess all the characteristics of pumice. It has always been either a glass, an enamel, or scorix; nor do I remember to have read or heard, that among the innumerable experiments which chemists have made upon earths with fire, the result ever was a true pumice: and though in lime-furnaces we may frequently observe a change of certain stones into glass; yet they never produce lavas similar to the volcanic; and equally incapable are they to form pumices. It cannot be alleged that the fire of our furnaces is too strong to induce that slight degree of vitrification which characterizes pumices; since, when I have used a more moderate fire, the substances on which I made my experiments have either not melted, or been more or less vitrified.

I shall conclude these observations on the pumices of Lipari with a remark relative to their colour. Except a few that are dark, they are all white as snow. Hence the mountain of Lipari, which forms the great magazine of these stones, is called *Campo Bianco* (the White Fields): but certainly there must have been a time when it should have been denominated *Campo Nero* (the Black Field); at least it is certain that pumices when newly ejected from volcanos are of a black colour. This remark, which has been omitted by almost all who have made observations on this subject, who content themselves with saying that this or the other volcano throws out pumices, has been expressly made by Don Gaerten de Bottis in his "History of the Conflagrations of Vesuvius*." He tells us, the pumices ejected at various periods by this volcano are black. He likewise remarks, that on comparing them with those which overwhelmed Pompeii, he found them perfectly similar in their structure. Their whiteness, was subsequently acquired, and probably was caused by the impressions of the atmosphere.

Before I conclude these observations on the Eolian isles, I think it necessary to say a few words on a subject which has a relation to the productions of Vulcano and Alicuda, and on which the opinions of modern naturalists are divided; I mean the basaltiform lavas which are found within the crater of the former island, and along the shores of the latter *, and which by their conformation cannot but remind the reader of the enquiries and disputes which have taken place within these few years relative to the origin of basalt. To repeat all that has been written on the subject would fill a volume; but I am far from purposing to tire either my own or the reader's patience in any such manner. It, besides, appears to me that this long agitated question may, at present, be determined without any very prolix augmentation. Literary disputes and differences of opinion frequently arise from want of previously fixing the state of the controversy; that is, from not defining in precise and clear terms the thing in question. Before we enquire what is the origin of basaltes, that is to say, whether they are the result of the action of fire or water, it will be proper to decide what we mean by the term: or rather what the ancients understood by this word, which is the name they gave to a certain kind of stones. It is now generally known, because it has been repeated by a hundred writers, though perhaps by the greater part without due consideration, that the word basaltes is used by Pliny and Strabo to denominate an opaque and solid stone, of the hardness, and nearly of the colour of iron, commonly configured in prisms, and originally brought from Ethiopia; of which stone the Egyptians made statues, sarcophagi, mortars, and various utensils. This premised, it remains to enquire whether this stone was of volcanic origin or not, by repairing to the places where it was found, and attentively examining the country to discover whether it bears the characteristics of volcanization. This labour however has not, to my knowledge, been hitherto undertaken by any one; but M. Dolomieu, to whom lithology and the history of volcanos are so much indebted, has discovered, during his stay at Rome, an equivalent, in some measure, with respect to the solution of this question. Among the many noble monuments in that superb capital which are instructive not only to the admirers of the arts, but to the contemplators of nature, are a great number of statues, sarcophagi, and mortars brought from Egypt, which have all the characters attributed to basaltes, and likewise preserve the name. These he has studied with the greatest attention, and declares that the stone of which they are formed manifests no sign of the action of fire. Among other Egyptian monuments, he observed some of a green basaltes, which change colour, and assume a brown tinge, similar to that of bronze, on being exposed to the slightest heat. All those that have been burned have acquired this colour; which proves, as he very judiciously observes, that the green basaltes have never suffered the action of fire †.

The Egyptian stones, therefore, to which the ancients gave the appellation of basaltes, have been produced by Nature in the humid way. These observations perfectly agree with those of Bergmann on the trapps produced in the same way; and which have, both externally and internally, the same characteristics with the basaltes ‡.

Werner, taking the term basaltes in a wider sense, and understanding by it all those columnar stones which, by their prismatic configuration, resemble the Egyptian basaltes, supposes both to have the same origin, and adduces as a proof of that origin, the basaltes of the hill of Scheibenberg, which are the effect of a precipitation by means of water; and concludes that "all basaltes are formed in the humid way ||."

Though I am willing to bestow the praise due to his discovery, I cannot admit his conclusion; for though many basaltes, taking that term in the sense of this author and

* See Chaps. XIII. and XVII.

† De Productis Vulcanicis.

‡ Rozier, tom. xxxvii. an. 1750.

|| Rozier, tom. xxxviii. an. 1791.

other naturalists, may derive their origin from water, many others are certainly the product of fire.

I shall not repeat what various volcanists have written on this subject, but merely refer the reader to what I have already said relative to the basaltine lavas of Vulcano and Felicuda. With respect to the former island, I have remarked in Chap. XIII. that I found within its crater a range of articulated prisms, with unequal sides and angles, which in part composed one whole with a mass of lava; and, in part, were detached from it. I have also there described the qualities and nature of these prisms. In Chap. XVII. I have particularly described the littoral lavas of Felicuda, which, near the water, are prismatic.

It is therefore evident, that in these two situations the origin of the basaltes there found cannot be what it has been assumed generally, by Werner and other Germans, but that it is truly volcanic. It consequently appears that Nature obtains the same effects by two different ways. In the fossil kingdom, one of her grand operations is crystallization; which, though it be most frequently effected in the humid way, is sometimes produced in the dry; as we see, among other instances in iron, which Nature crystallizes within the earth, both by the means of water and of fire, in which latter way the beautiful specular iron of Stromboli is produced*. Nor are there wanting other instances, of the crystallization of the same metal by the action of fire. And did other metals exist in the entrails of volcanos, and the necessary circumstances concur to their crystallization, it is indubitable that this may be effected by fire as well as by water. Thus we see that, by taking certain precautions, metallic substances assume a regular and symmetrical disposition within the crucible. The same is true of basaltes, the prismatic configuration of which, though not strictly a crystallization, has the most exact resemblance to it. Observation likewise teaches us that the same combination of earths, according to different circumstances, forms prismatic basaltes, sometimes in the humid, and sometimes in the dry way. The stone called trapp, found in the mountains of Sweden, is configured in prisms, though those mountains are of aqueous origin; and the horn-stone, which is so analogous to the trapp, has the same configuration at Felicuda, notwithstanding it is a true lava. In the same island, likewise, other basaltiform lavas have for their base shoerl in mass, and those of the crater of Vulcano, the petrosilex; which two stones, according to the observations of M. Dolomieu, form some of the Egyptian basaltes, which are a work of the waters. These two agents, fire and water, are not, in fact, so different in their action as we might at first be inclined to imagine. The prismatic figure in the humid way arises in the soft earth by the evaporation of the water; in consequence of which the parts dry, contract their volume, and split into polygonal pieces. The same phenomenon may be remarked in argillaceous earths, imbued with water, and exposed to the ventilation of the air; and I have frequently seen the mud of rivers, when dried in the sun in summer, to make pottery-ware, divide, when it became dry, into small polyedrous tablets. Similar configurations are produced in different lavas by the congelation and contraction that take place by the privation of the fire which held them in a state of fluidity.

It appears to me, therefore, that the dispute relative to the origin of basaltes is at an end; nor would there be any difference of opinion if, instead of generalizing ideas and fabricating systems, naturalists would make an impartial use of their own observations and those of others. Some volcanists, perceiving that the generation of various basaltes is evidently igneous, have immediately inferred that all must have the same origin. In

* See Chap. XI.

consequence of this principle, they have drawn lines or zones in different parts of the globe, indicative of extinct volcanos, which they have inferred from finding basaltcs there; and thus portrayed a picture of prodigious dimensions, representing the ruins caused in the world by subterranean conflagrations. Other naturalists, on the contrary, being convinced that certain basaltcs are the produce of water, have assigned to all the same origin. From the facts now adduced, it is however sufficiently evident that both these hypotheses are erroneous. The basaltcs, taking the term generally, when examined detached, do not bear exclusively any decisive marks of their origin. Local circumstances alone can determine to which of the two principles it is to be ascribed; to discover which we must attentively examine whether the places where these figured stones are found exhibit any indubitable signs of volcanization. Yet even these are frequently not sufficient, as there are many hills and mountains which owe their origin to both the great agents of nature, fire and water; in which case it will be necessary to redouble our attention, and fix it on the substances originating from each; to determine, by the relations these have to the basaltcs, from which of the two the latter derive their formation. By diligently employing these means, we shall be certain, without fear of error, to elucidate, and advance the enquiries relative to basaltcs, and be enabled accurately to determine which of them are to be ascribed to the action of water, and which to that of fire.

But here a second question occurs, not less interesting than the first, relative to the cause why certain lavas, differing from innumerable others, become basaltiform; since, if this configuration depended on congelation, it must be found in all lavas when they had ceased to flow. The first writer, to my knowledge, who has adverted to this is M. de Luc, who, in the second volume of his Travels, is of opinion that they have taken this regular figure in the sea, by the sudden condensation which took place on their flowing into it in a liquid state; other secondary circumstances, however, concurring, such as a greater homogeneity, and a certain attraction of their parts.

Of the same opinion is M. Dolomieu; though he does not deny that even porous lavas may sometimes likewise take the form of prisms. The former of these opinions is little less than hypothetic, while the latter is supported by facts too important to be cursorily stated. M. Dolomieu observes that all the currents of the lavas of Etna, the periods of which are preserved in history, have constantly experienced two effects in their congelation. Those which have cooled in the air have divided, in consequence of the contraction they have suffered by the loss of their caloric (heat), into irregular masses; while all the others, which have precipitated into the sea, have, on their sudden congelation, contracted in a regular form, and divided into prismatic columns, which form they have only taken in the parts in contact with the water of the sea. Of this he met with evident proofs along the shore which extends from Catania to Castello di Jaci; and the famous lava of 1669, though unapt to the prismatic form, from being spongy and little in quantity, yet in some parts exhibits a kind of rude imperfect prisms.

Among the objects to which I was attentive in my volcanic travels through the two Sicilies, the prismatic lavas were certainly not the last. While making the circuit of the Eolian islands, of Etna and of Ischia, I constantly observed carefully the conformation of the stony currents which fall into the sea. I have remarked when treating of Ischia, that this configuration is frequently prismatic, and that the prisms are constantly formed in those parts of the currents which immerse into the water, and reach to a few feet above the level. This observation of mine certainly accords admirably with those of M. Dolomieu; the situation of these prisms clearly showing that they were formed at the time of the immersion of the lava into the sea, which, when it flowed, rose to where they begin to appear. But, though I agree with him in this I cannot in the
remainder

remainder of my observations. Alicuda, as well as Felicuda, presents us with numerous currents and rocks that descend into the sea; and they are likewise found at Saline, Lipari, Stromboli, Panaria, Basiluzzo, and Vulcano; but these rocks and currents, which together extend over a space of more than sixty miles, do not afford the slightest indications of prisms.

As I went by sea from Messina to Catania, and returned to Messina from Catania, I had an opportunity twice to examine, at my leisure, that tract of shore, which, for the space of nearly three-and-twenty miles, is volcanic. One third of it, beginning at Catania, and proceeding to Castello di Jaci, consists of prisms more or less characterized, and such as they have been described by M. Dolomieu; but the other two thirds, though equally composed of lavas with the former, and for the most part falling perpendicularly into the sea, have no such figure; and only present, here and there, irregular fissures and angular pieces, such as are generally observable in all lavas, which separate more or less on their congelation.

In my circuit by sea round the shores of Ischia, I was particularly attentive, as I was every where else, to the conformation of the lavas; and here and there seemed a great probability of finding them prismatic, from the abundance of them which in different directions and angles fall into the sea: but I have already observed, when treating of the island, and I now repeat it, that I did not find one with a regular form.

At Naples, the prismatic lavas of the currents of Vesuvius, under the park of Portici, have been much spoken of. When I made my observations on this burning mountain I had not time to visit these lavas. It is with great pleasure therefore that I learn they have been examined by a person so well experienced in matters of this nature as the Chevalier Gioeni undoubtedly is. But the celebrated prisms disappeared in the presence of so accurate an observer. The following is the account he gives; which is of considerable importance to our present subject:—"I wished to examine the basaltic which were pointed out to me as to be found on the sea-shore, under the Royal Park of Portici; but they proved to be only a compact lava, with perpendicular and extremely irregular fissures, forming quadrangular, and sometimes trapezoidal pilasters, which have been employed in buildings. Similar fissures are likewise observed in tufas, and earths of different kinds, and can never mislead any person accustomed to them, and acquainted with their true causes."

By this faithful relation of facts I flatter myself I have clearly shewn that it cannot be supported as a general hypothesis, that flowing lavas take a prismatical configuration from the sudden coagulation they suffer on falling into the sea.

It may perhaps be objected, that these prisms once existed in the lavas I observed, but that the irresistible violence of the waves, in a long series of years, has corroded and destroyed them.

Every person acquainted with the subject must immediately perceive how little solidity there is in this objection. I admit that the violence of the sea may, in some lavas, have totally destroyed these prisms; but that it can have had that effect on all, and through so extensive a space is utterly improbable. Nor is it conceivable that Felicuda, among the Eolian isles, should still preserve its prisms perfect, while the rest of those islands have entirely lost theirs, notwithstanding they are all equally exposed to the shocks of the waves.

I cannot here omit another remark. It is certain that more than one of these islands were not formed by one eruption, but by successive ejections of lavas accumulating on each other; and in some deep fissures, occasioned by the sea, this successive formation is discoverable by the eye, as we may perceive five or six different strata of lava one
above

above the other. The internal strata in very remote periods having flowed into the sea, as the external flowed afterwards; it is evident that if the latter on touching the water became prismatic, the same change must have taken place also in the former; which being defended from the injuries of the sea by the external strata, must still preserve their prismatic configuration, of which however no traces remain. We must therefore conclude that innumerable lavas may fall into the sea, without having their external appearance in the least changed by the sudden congelation which then takes place.

That the prismatic configuration of lavas is not always the effect of their immersion in the waters of the sea, likewise appears from many of them taking the same form in the air; of which we have a distinguished example in the crater of Vulcano. Here certainly we cannot suppose any intervention of the waters of the sea. Similar observations have been made on Mount Etna by the Chevalier Gioeni. "I have observed," says he, in the work before cited, "basaltic columns at the summit of Etna, and nearly on a level with the base of its vast crater, where there is certainly no probability of the sea ever having reached; and I have frequently found polyhedrous basaltes perfectly characterized in excavations made by men in the centre of lavas, which have issued from the sides of Mount Etna, in periods much posterior to the retiring of the sea."

I should, however, appear deficient in candour, did I not mention that M. Dolomieu admits that lavas may sometimes in the air assume the prismatic form, if they fall into clefts and fissures where they suddenly cool, of which he adduces an example in the islands of Ponza.

I shall only remark, that I do not perceive the absolute necessity of the fissures in this case; since we frequently find lavas with this configuration in perfectly open places, as I have seen in the great mouth of Vulcano. And with this opinion the observations of Gioeni on Etna certainly accord; for had he remarked the concurrence of such a circumstance, he undoubtedly would have mentioned it.

What conclusion then ought we to deduce from all these facts and observations?

First: that many basaltiform lavas have assumed this organization on coagulating within the sea.

Secondly: that others have taken the same form, merely in cooling in the open air.

Thirdly: that innumerable other lavas have not taken this figure, either in the sea or in the air.

It appears at first view that these differences depend on the different nature of the lavas themselves. This opinion at least is rendered probable by what we observe in earths penetrated with water, which in drying take more or less prismatic forms, as has been observed frequently in the argillaceous kinds. I have seen when a turbid torrent has been introduced into a ditch through an argillaceous marle, the latter in drying divide into polyhedrous pieces; but when the water passed through chalk, or calcareous marle, the greater part of the pieces were amorphous. When we however observe lavas with requisite attention, this conformation in them seems to be effected differently.

It has already been said, that several of the prismatic lavas of Felicuda have for their base shoerl in mass; but it is true that other congenerous lavas of the same island, which form as it were walls perpendicular to the sea, are smooth over their whole superficies. A similar smoothness is observable in some of those of Mount Etna, on the shore between Messina and Catania, which have for their base the horn-stone; though others extremely resembling them, between Jaci Reale and Catania, are formed in prisms.

Compactness and solidity are likewise not a necessary condition in lavas, to this appropriate crystallization. This has already been remarked by M. Dolomieu; and I

have observed that many amorphous lavas on the shores of several of the Eolian islands are more compact than the prismatic lavas of Felicuda.

What then can be the intrinsic circumstance of the lava which determines it thus to cleave in the prismatic form? I confess I am ignorant: and who can say that we do not seek it in vain within the lava, since it may be extrinsic and adventitious? Such certainly appears to be the opinion of M. de Luc; and more expressly that of M. Dolomieu, who, to explain the phenomenon of volcanic prisms, has recourse to a sudden congelation, and instantaneous contraction of lavas.

The facts which we have adduced relative to lavas, both prismatic and not prismatic, it has been seen, do not always accord with those related by the French naturalist. But even on this supposition, which is incontestable, may we not retain the same principle of explanation, which, to say the truth, appears to be sufficient, with some requisite modifications? These I will endeavour to suggest, illustrating my conjecture by the two cases above adduced; the one, that of the lavas which take the form of prisms merely from the contact of the atmosphere, as in Vulcano and near the summit of Etna; the other, that of the lavas which refuse to take such a form even within the sea, as at Iſchia, in some parts of the base of Etna, and in all the Eolian isles except Felicuda.

As to the former, may not a sudden coagulation and contraction have taken place in some lavas from the mere influence of the atmosphere, though the lava was not included in any cleft or fissure? It is sufficient that it be suddenly deprived of the caloric (heat) by which it is penetrated, and which rendered it rarefied and fluid. To this deprivation a lava of little thickness will be very liable, since a body loses its heat the sooner the less its thickness and density. This sudden contraction may also be produced by the circumstances of the atmosphere; as should a strong wind, of a very cold temperature, blow at the time. The melted lavas in our crucibles will be found to give greater weight to this latter conjecture. If they are taken from the furnace, and caused to pass through a heat gradually less; their surface, as they cool, will only split in a few cracks, of little depth, and usually irregular; but when they are immediately, in the winter time, carried into the cold air, the fissures, besides being deeper, will frequently be disposed in such a manner, as to form small polyhedrous prisms, which may easily be detached from the rest of the lava.

With respect to those lavas which do not assume a prismatic form though they fall into the sea, it is certain that, to take that conformation, their mass must have a strong degree of effervescence and dilatation, and that it must be deeply penetrated with the igneous fluid, otherwise the contraction necessary to produce prisms cannot take place. But many currents which descend from the summit of burning mountains to the sea, must have lost their effervescence with their heat in so long a course, and scarcely contain sufficient to continue their motion downwards, which perhaps would cease, were it not for the impelling gravity of the lava, which frequently falls into the sea perpendicularly.

Such is the hypothesis by which I would explain the cause why some lavas have assumed a prismatic conformation without any concurrence of the sea-water, and others exhibit no appearance of it in places where they have immersed into the sea. I nevertheless leave every one to form his own opinion; and should an explanation of these important facts be discovered preferable to mine, which I consider as only conjectural, I shall receive the communication of it with sincere gratitude, and adopt it with pleasure.

CHAP. XXIV. * — CONCLUSION OF THE ACCOUNT OF THE EOLIAN ISLES, IN
REMARKS ON VARIOUS SUBJECTS NOT VOLCANIC.

- I. Lipari.—*Population of that island.—Useful vegetables produced in it ; among which the wine furnishes the most considerable branch of its commerce.—Celebrated malmsey of this country —Manner of making that wine.—Scarcity of corn, which might be rendered more plentiful by adopting a different system of agriculture.—Great abundance of Indian figs in Lipari and the other Eolian islands.—Delicious taste of their fruit.—Description of that shrub ; and remarks on the facility with which it may be multiplied —Proj^t to render it much more profitable by making use of its leaves to nourish the cochineal insect, as silk-worms are fed with the mulberry leaf.—Fishes and coral found near the shores of Lipari.—Account of a physeter, or kind of whale, observed by the author in that sea.—This fish, though internally organized nearly like others of the mammalia class, could remain under water a much longer time than they usually can.—Very few cattle of any kind in Lipari.—Cause of this scarcity.—Rabbits the only wild quadruped in this island.—Manner of hunting them with the ferret.—Stationary birds at Lipari but few ; nor any birds of passage, at least at the time the author was there.—Some which with us are birds of passage, there stationary.—Curious manner of taking swallows in the streets of the city in winter.—Branches of foreign commerce which have begun to be introduced at Lipari within these few years.—Remarks on the assertion of Strabo, Diodorus, and Dioscorides, that Lipari derived a considerable profit from the sulphate of alumine (alum).—Political and ecclesiastical state of Lipari.—Physical and moral character of the Liparise.—Brief account of the city of Lipari.*
- II. Stromboli.—*The great heat felt in this island not to be attributed to its volcano, but the sun.—Nature of this climate.—Frequency of tempests.—The shore of Stromboli destitute of a harbour.—Vessels used by the natives to navigate these seas.—The great quantity of fish taken in the vicinity of this island, probably a consequence of the heat of its volcano.—Plants which grow in this island.—Malmsey the principal product of the country.—Vines, and the manner in which they are defended from the wind.—Number of inhabitants.—The natives not fearful of their volcano.—Hospitality of the Strombolise.—Their character.—Account of a spring, the only one in the whole island.—Animals found in Stromboli.*
- III. Vulcano.—*An uninhabited island.—Great quantities of sulphate of alumine (alum.) once extracted here.—Difficulty of the extraction of it at present.—More profit might be derived from planting vines.*
- IV. Saline.—*Abundance of grapes in this island.—Spring near the shore, probably supplied by rain water.—Muriate of soda (sea-salt) extracted from a small lake contiguous to the sea.—Means of procuring this salt.—Curious phenomenon observable in this lake, when the sea water enters it.*
- V. VI. Felicuda and Alicuda.—*Their population.—The houses built not on the shore, or at the foot of these mountainous islands, but about half way up their declivity, that they may be less exposed to the incursions of the Barbary pirates, who formerly have frequently landed there in search of plunder.—Such incursions sometimes still made at present.—Well-grounded fears of travellers in sailing round these islands.—Useful vegetables in Felicuda and Alicuda.—The corn of Alicuda excellent, though produced but in small quantity.—Extraordinary industry of the inhabitants in its cultivation.—Fishing-boats of these islands.—Ridi-*

* Some chapters of a theoretic nature are omitted.

culous and superstitious practice of the inhabitants when a husband or wife dies.—Boyst of the people of the Lipari islands in general, that those islands contain no kind of serpent.—Physical reason of this fact.—Extreme scarcity of insects there, and the cause.—Enviably tranquillity and content of the inhabitants of these islands.—Salubrity of the air.—Advantages experienced from that salubrity by the author during his stay there.—Comparison between this very pure air, and that of some of the low plains of Lombardy.

TO complete my observations relative to these islands, I shall now proceed to give a concise account of their population, the character, manners, and customs of the inhabitants, their commerce, the animals stationary and migratory found in them, and other analogous objects, agreeably to what was proposed in the introduction to this work.

I. LIPARI.—This island is the largest and much the most populous of those called the Eolian isles, the number of its inhabitants amounting to between nine and ten thousand, a considerable part of whom reside in the city of the same name, which is very ancient, as it appears from historical records that it existed before the war of Troy *.

If the island of Lipari be divided into four parts, about two and a half will be found to be cultivated, and the remainder overgrown with wood and barren. These barren tracts, however, continually diminish, and are converted into fruitful fields, from a kind of necessity arising from the continually increasing population of the island.

Lipari produces cotton, pulse, and olives, though in but small quantities. The corn produced there, and which is of an excellent quality, amounts annually to fifteen hundred Sicilian *salme* †, or two thousand at most, and is scarcely sufficient to supply the city.

Among the useful productions of this island the principal are grapes, of which there are several kinds. The first furnishes the common wine which is drunk in the island, and of which there is so great an abundance, that they export annually two, and even three thousand barrels (*barilli*) of it without the least inconvenience. They press the grapes on the spot where the vines grow, and carry the must, in leather bottles, to their respective houses on beasts of burthen.

The *passola* and *passolina*, as they are here called, are two other kinds of grapes that are dried. The last is that sort which is usually called the Corinthian grape. Of this they commonly sell ten thousand barrels annually; and of the other about twelve thousand.

From a fourth kind of grape is made the famous *malmsey* of Lipari, which name alone is sufficient for its eulogium. It is a wine of a clear amber colour, at once generous and sweet, which fills and warms the mouth with an agreeable fragrance, and a return of sweetness some time after it is tasted. But as nature usually bestows on man her most precious gifts with a sparing hand, this grape is here scarcer than any other; and does not furnish at most more than two thousand barrels annually, which the Liparese sell for foreign markets, as they do also the *passola* and *passolina*. During my stay in the island, I could scarcely procure a sufficient quantity to revive my spirits after my fatigues, and carry with me a specimen of this rare and delicious liquor to Pavia.

I was desirous to learn the method employed by the natives in making *malmsey*. It is as follows: they do not gather the grape until it is perfectly ripe, which is known by its beautiful yellow colour and the sweet taste it acquires. When the grapes are ga-

* See Chap. XVI.

† A *salma* contains 16 *tumuli*, the *tumulo* from 20 to 22 *rotoli*, and the *rotolo* 2½ pounds. — *Stolberg's Travels*, vol. ii. p. 506.

thered, the rotten and spoiled berries being first picked out, they are exposed to the sun on mats made of reeds for eight or ten days, or sometimes longer, till they are dried. They then place them on a clean stone floor, surrounded with a kind of low wall, about two feet high, where they crush them, first with a stone fastened to the end of a small staff or handle, and afterwards with their naked feet, till all the juice is expressed; which is then let run off through an aperture to another similar floor, the sides of which are higher; and here the must is all collected. It is afterwards drawn off into vessels in which it is left to ferment, till it is perfectly depurated and become fit to drink, which it is by the following January.

The vintage is in the month of September, at which time the Liparese, leaving the city, resort in companies to some cottages near the vineyards, where they remain during the gathering of the grapes, resigning themselves to mirth and innocent pleasures; and the voyager, who chances to approach the island at that season, finds his surprise not a little excited by the numerous lights which are exhibited during the night, and illuminate and embellish these rustic habitations.

Another plant, if it does not form a branch of foreign commerce, is yet of some domestic utility to the Liparese: I mean the opuntia, commonly called the Indian fig. (*Cactus Opuntia*, Lin.) This shrub with us will not live through the winter, except it is preserved in hot-houses; and being in a climate not congenial to its nature, grows to no great height, and produces but few fruits, and those small and of no worth. At Lipari, on the contrary, and in the other Eolian islands, it thrives so well that it usually grows to the height of ten, twelve, and sometimes fifteen feet, with a stem a foot or more in diameter. The fruits, which are nearly as large as a turkey's egg, are sweet, and extremely agreeable to the palate, and of very easy digestion. When unripe, their skin or rind is green; but when ripe, of a reddish yellow. This plant will take root and grow, in a surprising manner, in almost any situation which has a favourable aspect, and the most favourable is the southern. It thrives alike in the poorest and the richest soils, the fissures of lavas, among the ruins of ancient buildings, on fragments of dried mortar, and in the crevices of walls. It is well known that the fruits grow at the edges of the leaves; the number on each leaf is not constant, but they are frequently numerous, as I have counted two-and-twenty on a single leaf. They begin to ripen about the beginning of August, and continue to November. In some situations, indeed, where they enjoy the benign influence of the sun, they remain through the whole winter; and even where they have not that advantage, they may be preserved ripe and in good condition during the winter, by being gathered green in autumn, and left attached to the whole or a part of the leaf, the juice of the leaf, which is always thick and pulpy, affording a nutriment to the fruit.

The inhabitants of Lipari eat these fruits during several months of the year; for as there is great abundance of them, they are sold at a very low price. Besides those which nature produces here spontaneously, the Liparese industriously cultivate great numbers of these Indian figs, and the method of multiplying them is very easy. It is well known that this plant is propagated by means of the leaves, which are of an oblong shape, narrower at one extremity than at the other, and resembling a peel or shovel, by which name they are called by the Sicilians. Every leaf is thick and pulpy, and each side of it scattered over with small buttons or knobs, from which arise a great number of little prickles, with a large one in the centre, of the length of an inch. If these buttons only touch the earth they take root, let the ground be what it may. The leaf which has taken root puts forth other leaves that again produce others; and from being flat, as it was at first, becomes in time round, and forms a trunk which lengthens and thickens

thickens in proportion as the other leaves grow and multiply. For the stem or trunk of the Indian fig, which, as I have already said, is sometimes more than a foot in diameter, is only a series of leaves in an upright position, and adhering to each other.

Such are the different vegetable productions of the island of Lipari, which however, with respect to commerce, may be reduced to one only, I mean the grape. Corn, as we have seen, from its scarcity, scarcely deserves to be mentioned; but this might be grown in far greater quantity, were the system of agriculture prevalent at present in this island changed. It is here the general practice to raise the vines two or three feet above the ground, and with poles and reeds to form a kind of squares by which they are supported. The consequence is, that the vines with their branches and leaves form a kind of covering, impenetrable to the rays of the sun, which renders the soil below entirely barren. Several of the natives of Lipari have had the good sense to perceive the inconvenience of this practice, and, disregarding the prejudices of their countrymen, have changed these pieces of barren ground into fruitful corn-fields, without the least detriment to the fruit of the vine. The Abbate Gaetano Trovatini, whom I have elsewhere mentioned with deserved commendation, is among the number of the few who have made this liberal experiment. I saw a field of his which, though not very extensive, nor of a better soil than others, produced both a plentiful harvest and an abundant vintage. Instead of planting the vines in the narrow squares there called *pergole*, he has ranged them in parallel espaliers with wide interstices of ground between them, in which he has sown corn in straight furrows, after the method of Du Hamel. Thus the air and the sun exert their influences freely between the espaliers, and not a foot of ground is lost to cultivation. The grain yields a luxuriant crop, and the vines are at the same time not less fruitful than those of the neighbouring grounds, where the old method is adhered to. It is true that Trovatini, like Caius Furius Cresinus in ancient times, is surveyed by many with an eye of ill-natured envy, when they compare the wretched appearance of their grounds with the copious produce of his. But even while I was there, several of his neighbours had begun to imitate his example. It is much to be regretted that Don Giuseppe Cippola of Palermo, the late bishop of Lipari and the adjacent islands, did not live some years longer. That worthy prelate seemed to have been born for the improvement of the soil of those countries, which before were wild and little productive. The number of olive-trees which he caused to be planted is incredible. I found above three thousand in Panaria alone. He also introduced mulberry-trees there, which have thriven extremely well. I saw one in a court-yard, planted eight years ago, which in size and strength did not in the least yield to ours of the same age, though the latter have the advantage of a more suitable soil. He has likewise enriched the island with another species of the Indian fig, brought from Palermo, the fruit of which is red and extremely delicious. I sincerely wish his successor, who is unknown to me, may follow his excellent example.

Since I have again mentioned the Indian fig, I cannot avoid noticing an idea which has occurred to me, and which, should it ever be carried into effect, must be productive of great advantage both to Sicily and the Eolian isles. The cochineal insect (*Coccus cacti*, Linn.) is bred and collected in Mexico, and other Spanish provinces of South America, and the commerce carried on in it is estimated at many millions of dollars annually. Might not the advantages derived from this precious drug be shared with Mexico by the Lipari islands and Sicily, which may be considered as the most southern part of Italy, from which it has been separated by the irruption of the sea that produced the strait of Messina? To effect this, two things indeed are necessary; the plant on which the insect lives and propagates, and the insect itself. The plant is that usually

called the Indian fig, and which is found in such abundance in the Eolian isles and Sicily, where I have seen the foot of Etna covered with it. Travellers relate that the opuntias of Mexico, where they are cultivated with the greatest care, grow to the height of eight feet, and that the leaves of some of them are nearly a foot in length. We have said that those of Lipari, and the same is true of the rest of the Eolian isles and of Sicily, rise to a greater height, and have leaves more than a foot long. If therefore these plants thrive as well in Sicily and the Eolian isles as in America, and perhaps better than they do there, why should not the cochineal insects, which feed on them, thrive equally in those countries? Will not the silk-worm, though originally from India, live and multiply in every country where it can be supplied with the leaves of the mulberry-tree? The only difficulty, in my opinion, would be the conveyance of this useful insect to so great distance, principally because it could not be removed in the egg, since it is viviparous, and not oviparous. It should be observed, however, that as the Americans perpetuate the cochineal by means of the leaves of the opuntia, it no doubt would continue to live on the leaves of that plant; which might be brought, growing in large vessels filled with earth, from Mexico to Sicily. The important advantages to be derived from the success of the experiment, at least would sufficiently justify the labour and expence of the attempt. I am not ignorant of the jealousy and reserve with which the possessors of this insect, which is so valuable to them, guard it from foreigners to prevent their stealing it. Such a theft has, however, been practised on them to the advantage of some of the French provinces. I know likewise that the hint I have here given, should it ever be carried into effect, would not be agreeable to the political views of Spain; but an Italian and a philosopher may surely be permitted to propose it.

I shall now dismiss the vegetables, and proceed to say a word of the fishery of Lipari, than which nothing can be more wretched. Not that the sea does not contain fish; but because there are but few there who follow fishing as an occupation, and even of these the greater number are not provided with the necessary implements. They only use the line and hook, and the *sciabica*, a kind of net, which they throw to a considerable distance into the sea, and then drag on shore. This mode of fishing is only used in the harbour, and not very frequently, at least in the summer, though I have been told that in winter it is more common, as they are then without other employment. I have often been present at their throwing the net, less from curiosity than to procure fish for my small table: but those days proved unpropitious to the fishermen, and not less unlucky to myself; since after three or four throws they either caught no fish, or those so few and small, that had I nothing else to eat I might have died with hunger.

In June and July they likewise fish for coral, both round the shores of Lipari and at Vulcano. When I was there I procured a rare specimen, consisting of a branch of coral which had grown on a volcanic enamel under the castle of Lipari. Fifteen barks, I was told, are usually engaged in the coral fishery; but either because they are ignorant of the proper methods of detaching this valuable animal plant from the rocks and caverns of the sea, or because they are not sufficiently expert in the use of them, this fishery is very unproductive. In the two months above mentioned, every bark carrying eight men fished up ten or fifteen *rotoli* of coral; and the rotolo contains two pounds and a half, and the pound twelve ounces.

Formerly coral was likewise fished at the *Secca di Santa Caterina*, a place distant ten miles from the harbour of Lipari; but some barks having been wrecked there, the bishop of that time, Father de Francisci, a Dominican, fulminated his excommunication against any bark which in future should have the temerity to attempt to fish in that place.

In my various maritime excursions round the Eolian isles, I never met with any of those smaller cetaceous fish which are frequently found in other parts of the Mediterranean. But one day when the sea was calm, while I was sailing between Panaria and Vulcano, a large cetaceous fish of the genus of the physeter, and which, from a long fin on the back, I judged to be the *Tursio* of Linnæus, suddenly rose to the top of the water. It approached within about seventy feet of my boat, and I had sufficient opportunity to observe it with some attention. It is well known to mariners as well as naturalists, that dolphins, physeters, and whales, properly so called, have need of respiration from time to time, and therefore frequently rise to the surface of the water with the upper part of their bodies, and throw up, from one or more apertures they have in the head, one or two ejections of water accompanied by the air they have taken in, and inhale fresh air. The cetaceous fish of which I now speak did the same; and when he came to the surface of the water, and drew along the half of his body above it, he was so near that I could estimate his dimensions with the eye. He was at least twenty-eight feet long, and the breadth of his body, where largest, not less than eight feet. The caudal fin was eight feet in length, and the dorsal two. At every expiration a hissing sound was heard of air and water, which he ejected to the height of eight or nine feet. A little before he made this ejection, he raised nearly the half of his huge body above the water, but after five or six minutes again sunk and disappeared. I wished to observe the interval of time between one ejection and another, as the animal continued this alternation for a full quarter of an hour. I perceived they were repeated after every sixteen or seventeen seconds, and I flattered myself that I had ascertained with sufficient accuracy the space of time that one of this species of fish can remain under water without being obliged to rise to the surface and inhale air; but I soon found this calculation erroneous. After my curiosity had been gratified with this scene about a quarter of an hour, the animal raised his tail vertically about three feet above the water, and plunging directly down disappeared; nor could I again discover him, though both I and the four mariners who were with me watched with the utmost attention during a quarter of an hour: and certainly had he in that time raised himself to take in air, we must have seen him, from his great bulk and the calmness of the sea. I then perceived that this animal, though in his organization in a great measure resembling the class of mammalia, and therefore, like them, under the necessity of respiring, could yet remain a much longer time under water than they can.

But if aquatic animals are of little advantage to the inhabitants of Lipari, their land animals are nearly of as little. Both large and small cattle are there extremely scarce; and the few oxen and cows which are slaughtered there are brought from Sicily, and are very lean. This is entirely to be ascribed to the poverty of the pasturage. The Liparese cultivate themselves the small portions of land they possess.

With respect to wild quadrupeds, the country produces only rabbits, which make their burrows in the mountainous parts, where the volcanic matters, principally of the tufaceous kind, permit them to dig with their feet. They are hunted with the ferret (*Mustello Furo*, Linn.), and the chase is very amusing. Though this animal be originally from Africa, it will live and propagate in the southern countries of Italy. It is about the size of the common cat, and in its make something between the weasel and the pole-cat. I have seen them extremely tame at Lipari, where they breed as fast in the houses as when wild. The sportsman who goes to catch the rabbits takes with him the ferret in a cage, and a dog. The latter, when he sees the rabbit, follows him to the hole in which he takes refuge; or, if he is under ground, discovers him by the

scent,

front, and stops at the mouth of the burrow. The sportsman then puts the *capestro*, a kind of muzzle made of packthread, on the ferret, that he may not bite the rabbit; as otherwise he would kill it in the hole, and after having sucked the blood, leave it there. Being unable to seize it, he only scratches it with his claws, and terrifies it till it endeavours to make its escape out of the burrow, and is taken in a net placed for the purpose. The ferret follows it out, and is again put into the cage.

These rabbits are smaller than the tame ones, and, like others that are wild, are of a grey colour. Not that they are originally such; since it is within memory that they were first brought there by one of the natives, where they have, as is usual with them, multiplied prodigiously. But nature, put under restraint by man, never fails to restore to animals which regain their liberty, the size and exterior habit of body which they had in their original state.

The birds stationary here are but few. They are the partridge (*Tetrao Perdix*, Lin.), the greenfinch (*Loxia Chloris*, Lin.); the sparrow (*Fringilla Domestica*), the goldfinch (*Fringilla carduelis*), the horn-owl (*Strix Scops*), and the raven (*Corvus Corax*). The latter is usually found about the cultivated fields near the stoves, and on the steepest rocks, though sometimes in places sufficiently accessible for the young ravens to be taken.

Of those kinds of water-fowl which migrate from one sea to another, according as they find food in greater or less plenty, and pass indifferently from the salt water of the sea to the fresh of rivers, lakes, and ponds, such as the different kinds of sea-gulls (*Larus* Linn.), and the cormorant (*Pelicanus Carbo*), I did not see one here. Indeed it is very rarely that any kind of water-fowl is seen in the Eolian isles.

It is not the same with the birds of passage. In April the turtle-dove (*Columba Turtur*) and the quail (*Tetrao Coturnix*) arrive here, and stay a few days. They come in the same manner in September. Several kinds of swallows are common here (*Hirundo rustica*, *urbica*, *apus*, *melba*). The two latter make their nests in the fissures of the rocks, and in the highest walls of the city of Lipari. When I left that city, which was on the 15th of October, some swallows of the first and last species were flying over it. I shall likewise observe, that on the night of the 13th of the same month there was a dreadful tempest with lightning, rain, and hail; and the next day, early in the morning, a strong south-west wind blowing, I saw in the air, over the cattle of Lipari, at least a hundred common house-swallows, though they soon after disappeared. Reaumur's thermometer that morning stood at 15° degrees above zero (67° of Fahrenheit).

In some conversations relative to swallows, which I had with Doctor Trovatini and several other persons at Lipari, they related to me a fact which I had before heard at Stromboli, and shall again mention when I come to treat of that island. It is that in winter, and when a sciroccal or warm southerly breeze blows, swallows of one or other of the four species above mentioned are frequently seen to skim the ground in the streets of the city, and are then easily knocked down with long sticks by children, as they are extremely wet. The two latter kinds are even taken with hooks and lines fastened to the extremity of a long reed. A small feather is fastened over the hook, and the boy who holds the reed conceals himself behind the corner of a street, and waves the feather in the air. The swallow, accustomed to catch insects as it flies, takes the feather and is caught by the hook.

From these observations we cannot but conclude, that these swallows do not pass into Africa at the approach of winter, as many have believed, but that they more probably remain in the island, and issue from their retreats in the warm days of winter in quest of food.

I saw likewise at Lipari, while making the circuit of the island by sea, a fifth species of swallow, the swallow of the bank (*Hirundo riparia*, Linn.). This bird is so denominated from building its nest in the banks of rivers, and sometimes the shores of the sea. I observed several of these swallows flying about the rocks of tufa, which descend almost perpendicularly into the sea; and having stopped there some time with my boat, I saw more than one of them go into and come out of the holes they had made in the tufa. I was told by the people of Lipari that this kind of swallow appears in March, and disappears in October.

In the introduction to this work I have mentioned that it was my intention to add to the observations I should make on the swallows of Lipari and Sicily, others which I had made on the same species of birds in Lombardy; which addition would not have been so long, but it might have been here conveniently subjoined. But having afterwards more fully considered the subject, and made new and various experiments to elucidate the great controversy, whether swallows remain torpid during the cold weather, of which I have slightly treated in my other works (see my Annotations on the Contemplation of Nature, and Tracts on Animal and Vegetable Physics *); and having afterwards extended those experiments to other animals which are in like manner torpid in winter, and especially those whose blood is cold, as the common hedge-hog (*Erinaceus Europæus*, Linn.), the marmot (*Mus Marmota*), the dormouse (*Mus avellanarius*), the bat (*Vesperugo*), I found my matter so increase on my hands, that I determined to publish my observations on this subject separately, after having finished the work in which I am at present occupied.

We will now proceed to notice some other particulars relative to Lipari and its inhabitants. Foreign commerce has begun to be introduced into the island by the mariners, most of whom traffic in what they call gallantry-wares. They every year buy, at the fair of Sinigaglio, linen, muslins, veils, and other commodities of that kind, to the value of from thirteen to fourteen thousand Sicilian *uncie* †, and sell them at Messina, Catania, Palermo, and other parts of Sicily. This trade is very advantageous to the country, and many have acquired considerable wealth by it. It has however considerably diminished the fishery, and raised the price of fish.

Strabo, Diodorus, and Dioscorides, write that the sulphate of alumine (alum) was procured in great abundance at Lipari. The truth, however, is, that none whatever of that salt is now extracted in the island. I have passed over almost every foot of ground in it, and only found some traces or efflorescences of it, as I have mentioned in the proper places, which, with respect to profit, would not pay the labour of collecting. We must therefore conclude that the vein of this mineral has either been exhausted or lost; or that the Liparese procured it, not from their own island, but the neighbouring one of Vulcano, which is still rich in this sulphate. The latter is perhaps the most probable explanation of the authorities above alleged.

The political administration of Lipari is composed of a criminal judge, a fiscal, a governor who has the chief authority both in military and civil affairs, and who is commonly an old invalid, and a civil judge.

The bishop, seventeen canons of the first order, and fourteen of the second, and from a hundred and twenty to a hundred and thirty priests, form the ecclesiastical establishment.

* Annotazioni alla Contemplazione della Natura.—Opuscoli di Fisica Animale e Vegetabile.

† Count Stolberg, in his Travels, lately published, says the *uncia* of Sicily is worth three rix-dollars and nine good groschen; or about eleven shillings and nine-pence. The German translator of this work estimates the *uncia*, I know not on what authority, at six dollars.—T.

The natives of this island are not wanting in natural abilities, but in the cultivation of them. The Liparese are in general of a prompt and lively wit, ready to learn, of acute penetration, and extremely desirous of obtaining knowledge. Hence, when any learned stranger visits their island, there is no end to their questions and enquiries. They willingly become his guides to their stoves and baths; and there is not one among them who is ignorant that his country was once produced by fire. The seat of the court of King Æolus is contested in the Eolian isles, as the birth-place of Homer is in Greece. He is claimed by each of the islands; but the people of Lipari are fully persuaded that the royal residence of this petty sovereign was in their island; and those among them who have some little tincture of literature, can cite the authority of Homer and other writers in proof of their assertion.

A beggar is scarcely ever to be found in Lipari; for even the poorest persons have some small piece of ground which they cultivate, and by the produce of which they live.

The natives are usually robust, strong, rather of a large size, and comely. When young they have fine complexions; but fatigue will diminish every kind of beauty, even that of the fair sex. This change is greatly accelerated by the heat of the sun; the effects of which are conspicuous in their tanned skins and swarthy countenances.

If it was a disgrace in Greece to be unable to swim, it is not less shameful in Lipari and the other Eolian isles, to be ignorant either of that art, or that of managing the oar, or steering and handing the sails of a vessel. The priests are very expert in every exercise of this kind. The greater part of them have, like the sailors, their arms or hands marked with black indelible stains representing either the crucifix or some saint. I knew, at Lipari, a man of considerable property, and who was honoured with the title of baron, who was marked in this manner, having formerly been a mariner.

The city of Lipari is not of an extensive circuit, and consists rather of narrow alleys than streets. The castle is surrounded with a wall on which are mounted a few cannon, and is defended by a small garrison. The houses are very indifferent buildings, but three edifices are distinguishable from the rest. These are the palace of the bishop, the house of the governor, and the cathedral church. The latter contains very valuable sacred utensils, and a great quantity of plate and silver images, among which is the statue of St. Bartholomew, their patron saint. These have been collected entirely at the expence of the people, and the value of this treasure is said by those who understand it to amount to ninety thousand Neapolitan *scudi* *.

II. STROMBOLI.—Though both Stromboli and Lipari lie nearly under the same degree of latitude, or 38° N., the former is much hotter in summer than the latter; especially near the sea, on account of the strong reflection of the rays of the sun from the large tracts of sand. It does not appear probable, however, that this heat is to be attributed to its volcano, since, excepting a few places near its mouth, if we dig into the earth, we find the ground less warm at some depth than on the surface.

The winter here is always mild; it never freezes; and snow, which is seldom seen, if it fall one day, melts the next. Its greatest depth is about two inches; and it is related as a prodigy, that, some years since, snow fell on the first of November, to the depth of a palm (or nearly a foot). On the summit of the mountain indeed, snow falls more frequently, and sometimes will remain for a fortnight; which proves the height of the mountain to be very considerable.

* The Neapolitan *scudo* is worth about 4s. 3d.

The sea round this island is frequently agitated by storms, and the fact I am proceeding to mention will shew to how great a height its raging billows beat.

About a mile from the land, on the north-east side of the island, rises a spacious naked rock, called the Rock of Stromboli. It consists of one entire piece, has rugged points at the top; and its base, where it is washed by the water, is about a quarter of a mile in circuit. Its greatest height is three hundred feet. This rock is a huge mass of lava, which, probably, once was joined to the island, and has since been separated from it by the violence of the sea. The natives of Stromboli have observed that, in very great storms the billows rise to one half the height of this rock; and some of them have assured me that they have twice in their time seen the waves rise above the top of the rock. As therefore, in general, the agitations of the sea are only a consequence of those of the air, we may form some conception of the fury of the winds, which are here more violent than in any of the other Lipari islands. These hurricanes, which frequently arise on a sudden, lay waste the plantations, and wreck the barks exposed to their fury. To avoid as much as possible the effects of their violence, the houses here are built very low.

The shore of Stromboli has neither port nor harbour, and vessels can only seek some little refuge, in case of heavy storms, on the back of the island. Large ships, except compelled by necessity, never anchor there, from fear of running on sand-banks. The vessels employed by the natives for their own occupations are feluccas, which, being extremely light, are easily drawn upon land, and as easily launched again into the sea.

The fish here are very plentiful and large, especially the sea-eels and murenas; and, during my short stay in this island, I saw a greater quantity taken than during the whole time of my continuance in all the other Eolian isles. They are likewise of an excellent taste. This abundance I am inclined to attribute to the volcano, which has continued incessantly burning from time immemorial; and which extending to an immense depth must necessarily communicate a part of its heat to the submarine base of the mountain, and to the waters that surround it, in the gentle warmth of which the fish find a more agreeable place of resort, and perhaps propagate in greater numbers than elsewhere. The fishery, however, produces here no branch of commerce, and only serves to supply the island, principally the foreigners who visit it; as the natives usually live on salt meat, and strangers can rarely find any food so agreeable to their palate as fish.

The vegetables that grow in Lipari are found here likewise, and nearly in the same proportion. Malmsey is the greatest article of traffic of the people of Stromboli; they convey it in barrels to Lipari, where they find a ready sale for it. The vines producing the *passola* and *passolina* grape, and that from which the malmsey is made, grow on the sea-shore; and those for the common wine, on the sides of the mountain. Some of them are fastened to trees; but they are all planted in vineyards; and, where these are situated high, they are surrounded with thick reeds, which at once support and defend them from the wind. The vines form a chain to the north-east, and are all planted in volcanic sand.

The habitations of the islanders are built in the same part, and under the same aspect. They are an irregular assemblage of cottages and fishermen's huts. The population of the island amounts to about a thousand persons, and has been for some time increasing; in consequence of which exertions have been made to enlarge the cultivable ground by clearing away the woods. They have no fear of their volcano. Neither they nor their fathers having ever seen torrents of lava burst forth from its furnace and spread desolation around, as has happened from time to time at Etna and Vesuvius; they survey its more constant fires with an eye of indifference and security.

Mr. Broydone, in his tour through Sicily and Malta, tells us that, notwithstanding his great desire to visit this volcano, the only one of its kind, he did not venture to land at Stromboli for fear he should be ill used by the inhabitants, whom he believed to be little other than savages. On the contrary, M. Dolomieu was very civilly received by them. The treatment I received from them, and the conversations I had with them, likewise convince me that the English traveller must have been very wrongly informed. The character of these islanders is nearly the same with that of the inhabitants of other villages at a distance from, and having no communication with, populous cities; I mean they are simple, honest, and, having but few ideas are contented with the little they possess. Their longest journey is usually to the city, which, though it is small, appears to them wonderfully magnificent; and when they first enter it, they are affected like Dante's rustic:

“ Non altrimenti stupido si turba
Lo Montanaro, e rimirando ammira,
Quando rozzo, e selvatico s' inurba ”

“ Thus the rude clown who, for the first time, views
Of some throng'd capital the wealth and pride,
Gazes with open mouth, in wonder wild.”

A little above the base of the mountain, on the east side, is a small spring, the scanty supply of fresh water from which would be inadequate to the wants of the inhabitants, were it not for a more copious and inexhaustible stream at a little distance from it, which furnishes them with water to dispel their thirst, and without which they could not exist, when, in summer-time, the rain-water they have preserved in their cisterns is entirely exhausted. M. Dolomieu, who visited this fountain, supposes it to owe its origin to evaporation caused in the mountain by volcanic heat and succeeded by condensation at a certain height, it not appearing to him possible that this spring should have its reservoir in the higher parts of the mountain: as these are composed of sand and porous stones, and therefore are unfit to retain water. This hypothesis is certainly both ingenious and probable; but may not another be equally probable which supposes this spring to be supplied from the summit of the island, where the earth being sandy and full of pores, the rains easily penetrate it and collecting in the cavities below form a mass of waters at all times sufficient to supply the spring? According to this hypothesis, the reservoir will not be on the surface, but in the internal part of the mountain. The objection that the heat of the volcano would reduce such a body of water to vapour will be found to be of little weight, since the spring is more than a mile distant from the crater; and it is very probable that the activity of the fire does not extend so far; indeed it seems almost certain; for we do not perceive for a considerable space around it, notwithstanding the porosity of the earth, the slightest trace or indication of those fumes which are the most certain indication of subterranean fires. In fine, the origin of this spring, which never fails, can only be explained in the same manner as that of other fountains of fresh water in other islands.

We find here no stationary birds whatever. Attempts have been several times made, but in vain, to naturalize partridges here. The experiment has succeeded better with rabbits. Those formerly brought have multiplied and continue to multiply; living in their natural wild state, in the woody part of the island. The musket and the ferret are their only enemies.

The birds of passage are the same as at Lipari. When I was at Stromboli in the beginning of October, I saw three swallows (*Hirundo rustica* Linn.) flying over the island; and several of the inhabitants assured me that they frequently re-appear in winter, when a warm wind has rendered the air warmer than ordinary.

III. VULCANO.—This island is not inhabited, nor is it remembered that it ever was. It is more than probable that its numerous eruptions have occasioned it to be thus deserted. It is not, however, more than a century since it was of considerable utility to people of Lipari from the quantity of sulphur and sulphate of alumine (alum) they procured from it; bringing away annually, if we admit the estimate of Pietro Campis *, to the amount of four thousand *cantara* † of the former, and six hundred of the latter. We have already mentioned the sulphur of this island, and the difficulties with which it is procured, in Chap. XIII. Sulphate of alumine still abounds here; but the extraction of it is attended with the same difficulties as that of the former mineral. These are occasioned by the numerous sulphureous fumes, and the heat, which exhale from the subterranean caverns, and which are found the strongest in the places where that salt most abounds. I am, therefore, of opinion that, at the time these substances were dug here, the state of the volcano must have been different.

The people of Lipari might, however, if I am not mistaken, derive another more stable advantage of which they have hitherto been ignorant, or have neglected, from this deserted island. This would be obtained from the productive plantations that might be made in the southern parts of the island, to which, for a great length of time, the fire has never extended its injuries. This part of the island consists of a softened and half-crumbled lava, similar to that of Stromboli, where vines thrive so well; nor can I discover why they should not succeed equally well in Vulcano. The same idea has occurred to Trovatini; and the bishop of Lipari, whom I have before mentioned with the respect which is due, told me that he had thoughts of attempting the cultivation of Vulcano by sowing corn, and planting vines and fruit-trees.

The bishop likewise communicated to me another idea which I did not expect. He said he had conceived the design of building a seminary in that island, for the education of twelve youths, sons of the peasants, who should be brought up to the service of the cathedral, and of the parish churches of the other Eolian isles. He very justly thought that these youths, having been born and educated in the islands, would be better fitted for, and more attentive to, the discharge of such duties. Whether since the death of this prelate any attempts have been made to carry his useful plans into execution, I cannot say. The little disposition which those who succeed to any office usually shew to complete the projects of their predecessors, inclines me to think it very doubtful whether Vulcano will not still remain in its former deserted and barren state.

IV. SALINE.—Didyme, or, as it is at present called, le Saline (or the salt-pits), is very different from Vulcano. This island in many parts has its skirts covered with cottages, and abounds in vines, the grapes of which yield wines not inferior to those of Lipari.

At a little distance from the sea, near Santa Maria, a continual spring of fresh water rises. The great heat of many such springs is usually an unequivocal sign, if not of the existence of a volcano, at least of subterranean effervescences. This, however, when I examined it by the thermometer, appeared to be two and a half degrees cooler than the temperature of the atmosphere ‡. It formerly issued nearly on a level with the water

* *Diseño Historico della Città di Lipari.*

† The Neapolitan *Cantara* or quintal is of two kinds; the *grosso*, or the great, and the *piccolo*, or the little. The great *cantara* contains 100 *rotoli*, and 3 *rotoli* make 8 pounds 4 ounces Neapolitan weight, the pound containing 12 ounces. The little *cantara* contains only 100 such pounds. T.

‡ I shall here observe that excepting some places in Stromboli, Vulcano, Lipari, and a spring in Felicuda, I never could perceive, though I used the thermometer, that the Eolian isles, other circumstances being the same, are warmer than Messina, the coasts of Calabria, and other neighbouring countries which are not volcanic.

of the sea, with which it frequently mixed, and thus became almost useless to the inhabitants; but this inconvenience has within these few years been remedied, by a vertical section being made in the shore; in consequence of which it now issues fifteen feet above the level of the sea. It is very abundant, and throws up five streams of water, each about an inch in diameter, which is very extraordinary in a volcanic island; at least in any of those of Lipari.

This plentiful spring, there can be no doubt, is supplied by rain-water, as, in the present time, the opinion that fountains and rivers are immediately derived from the sea, is entirely exploded. The rains, however, by which it is nourished are not to be sought in remote countries; they can only be those which fall on the island. It must at the same time be confessed, as I was assured by the natives, that there has sometimes been no rain there for nine months, and yet this spring, in all that time, did not appear to suffer the smallest diminution. In what manner then shall we account for this, if we ascribe its origin to rain-water? I can see no absurdity in the supposition, on the contrary, it appears to me extremely probable, that, in the internal parts of an island which, like this, is the work of fire, there may be immense caverns that may be filled with water by the rains, and that in some of these which are placed above the spring, the water may always continue at nearly the same height, and a long drought consequently produce no alteration in the spring. By a similar hypothesis, which does not appear to me at all forced or unnatural, we have explained above the origin of the spring which continually flows in Stromboli.

I have already mentioned that this island received the name of Saline (salt-pits) from the muriate of soda (sea-salt) which is obtained in it. A brief account of this product, and the place where it is procured, may not be unacceptable to my readers. Close to the shore, on the south-east side of the island, there is a lake of about a mile in circuit, separated from the sea only by a bank of lava, not formed by art, but by the sea itself, which has raised it by the beating of its waves. It appears indubitable, that this lake was once a small bay or creek of the sea, which has been shut out by the accumulation of the lava, though its waters are still admitted by secret channels; since, notwithstanding the continual evaporation, the lake remains full. In consequence of this continual evaporation, however, the water in it becomes saltier than that of the sea, and in consequence forms a crust of muriate of soda (sea-salt) on its banks. The lake has every appearance of being very ancient, but had been long neglected; until in the year 1750 an attempt was made to render it more advantageous, under the direction of a native of Trapani, who was acquainted with the nature of salt-works. He first drained the lake, and then dividing it into thirty square pits, each separated by high banks, let in the sea-water to a certain height, which gradually evaporating by the heat of the sun, which in summer is there very great, left on the sides of the banks, and at the bottom a stratum of salt. This method has been continued since, and the salt collected twice or thrice every year, according as the heat of the season more or less favours the evaporation. The quantity procured is sufficient to supply all the Lipari islands.

The inhabitants from whom I received this account related to me at the same time a fact that excited my surprise. The sea in a violent storm making its way into the lake, carried with it a number of fish of the *cephalus* or chub species, which continued to live in the lake as in their native element. They multiplied very fast, notwithstanding the water by a new evaporation was rendered extremely salt; and when they were afterwards taken out, they were found to be very fat and well-flavoured. This the more surprised me, because some years before, in another part of the Mediterranean, that is where the river Magra falls into the sea, near Carrara, I had observed this species of fish.

fish delight in water almost fresh; leaving the open sea for the mouth of the river, and appearing to seek those places in which the sea-water, mixed with that of the river, and less saltness; to which places the fishermen resorted to catch them. Other species of sea-fish without number of a very different nature, not being able to live in water which is saltier than that of the sea. Thus near Chioggia, in the Venetian state, I have found some which presently died when put in water saturated with muriate of soda (sea-salt), nearly the same with that of the lake above mentioned, and prepared for the same use. Such a difference of temperament in animals formed to inhabit the sea must doubtless be the result of a difference of organization, though we are ignorant in what it consists, less perhaps from the difficulty of discovering it, than from our not having directed our enquiries towards this part of the animal economy.

V. VI. FELICUDA and ALICUDA.—These two islands are the last of those of Lipari towards the west. In Felicuda the houses are scattered over the whole island, which contains about six hundred and fifty inhabitants; but in Alicuda, the population of which is not so great, they are built only at the south and south-east end of the island; it being in fact impossible to build them any where else, the rest of the island consisting only of cliffs, and crags, steep precipices and inaccessible rocks. It is observable that these houses, or rather cottages, are not erected at the shore, or base, of these mountainous islands, but about half way up on the side which has a very steep declivity, where likewise stand the houses of the two parish priests. I at first was unable to conceive why a situation so difficult to reach, from the steepness of the ascent, had been preferred for their houses to the lower parts of their islands, which is much less steep and nearly level with the sea. But I was told by both the peasants and the priests, that this situation had been chosen by their ancestors because that formerly Felicuda and Alicuda, being the most remote from the principal island, were greatly exposed to the attacks of the Turks, especially the Tunisian corsairs, who frequently landed there in the night, surprised the islanders while asleep in their houses near the shore, plundered them of their goods, and carried them away into slavery, as they have sometimes made similar predatory descents, in the present times, on the coast near Genoa. The people of Alicuda and Felicuda on this account built their houses where the danger was less. The Eolian islands are indeed still liable to such visits from their African neighbours. It is true the latter do not always succeed in their design, but sometimes pay dearly for their temerity; yet it is necessary for the islanders to take every precaution, on which account there is a centinel stationed on the Monte Della Guardia at Lipari, who is on the watch night and day. This, however, does not deter the barbarians from frequently stretching over to those islands; where they lie in wait under a rock, a cape, or a point of land, till they see some small vessels when they dart like vultures on their prey incapable of resisting their force, and setting their sails, if the wind be favourable, or labouring with their oars, are soon out of sight of the islands and in the open sea; where it little avails the unhappy wretches they have made slaves to lament their fate or sue for mercy. I will confess that, frequently while making the circuit of these islands, I was not without my fears that I might in this manner be carried to make observations of a very different kind on the neighbouring coasts of Africa.

Besides Indian figs and some olive-trees, these two islands contain many vines, from the grape of which a good wine is made, though it is not malmsey, nor the grape the passola or passolina.

The corn grown here is barley and wheat; of which, together with the grapes, there is produced in Alicuda to the value of about three thousand Neapolitan crowns; and about one third more in Felicuda. This quantity of corn is sufficient for the support of

of Alicuda; but the produce of Felicuda is not sufficient for it; the Liparese, who are owners of a number of the small farms there, carrying away a considerable quantity.

The industry and patience of the people of Alicuda is incredible: they do not lose an inch of the ground they cultivate. There is scarcely a tract of cultivable land of a few perches in circuit, which is not interrupted with points of rocks, masses of lava, clefts, and crags: yet all these tracts they render productive: they turn and break them with pointed spades, and render every foot of them fruitful; on which account the Liparese say, jestingly, that the people of Alicuda till their lands with the point of a knife. It is certain, at the same time, that in all the Eolian isles there is no better bread than that made in Alicuda. I have tasted it, and can affirm that it is most excellent.

Few fish are taken in these islands because there are but few fishermen, and these have no nets, but only use the hook and line. The whole number of boats, likewise, either used for fishing, or to pass from one island to the other, is only five or six in Felicuda, and three or four in Alicuda. When they no longer want to use them, they draw them up out of the water on the dry beach, where the sea cannot reach them, till they again have occasion for them. One or two of these boats usually belong to the parish-priest, who not only makes use of them in fishing, but for other purposes; as to go to market to Lipari, or to accommodate a stranger, in which case he will not refuse to act as pilot, or, on an emergency, as rower. Necessity, the mother of industry, impels these good priests to endeavour to find employment, as they could scarcely live, however wretchedly, one half the year, on their ecclesiastical revenues, which amount to little more than twelve sequins annually for each island.

At Felicuda, when the husband or wife died, it was a custom considered as a kind of sacred duty for the nearest relations to follow the body to the grave with loud and immoderate lamentations, and, as soon as the obsequies were finished, to throw themselves upon the corpse, embrace it, kiss it, speak to it with a loud voice, and give commissions for the other world. This ridiculous practice, which is not modern, has been abolished by the present priest.

In neither of these islands is there a single spring of fresh water. The inhabitants are therefore obliged to have recourse to the rain-water they can preserve in cisterns; and, when it happens not to rain for several months, their distress is extreme.

The people of Alicuda and Felicuda, in fact, of all the Eolian isles, boast that their islands are exempt from every kind of serpents; and, indeed, in all my excursions in them, I never met with one. The reason of this evidently is because the food necessary for these creatures is wanting: they feed principally on insects and other small animals, of which I found here very few. The scarcity of these latter is likewise to be accounted for on the same principle; as it is known that they feed on vegetables chiefly of the herbaceous kind, which in these islands are extremely rare.

Of other animals of the amphibious kind I only met with the gray and green lizard (*Lacerta agilis* Lin.), and with respect to insects, only some grasshoppers, and the lion-ant (*Myrmeleon formicarius* Lin.), which are found in great numbers among the dust of the pumices and lavas.

The people of these islands may likewise boast of an advantage incomparably more important; I mean, that their sovereign, in consideration of their poverty, has exempted them from every kind of taxation, only paying tythes to the bishop, from which however the people of Lipari are exempted.

It is incredible, at the same time, how contented these islanders are amid all their poverty. Ulysses, perhaps, cherished not a greater love for his Ithaca, than they bear to their Eolian rocks, which, wretched as they may appear, they would not exchange

for the Fortunate Islands. Frequently have I entered their huts, which seem like the nests of birds hung to the cliffs. They are framed of pieces of lava ill joined together, equally destitute of ornament within and without, and scarcely admit a feeble uncertain light, like some gloomy caves. Sometimes I have been present at their wretched meals, set out in coarse dishes, or on the bare ground on which they sat, and consisting of black barley bread and wild fruits, and sometimes, by way of dainty, some salt-fish, and pure water to quench their thirst. Attending only to the first impression of the scene, I thought I beheld the perfect image of wretchedness and misery; but on more mature consideration, I discovered in these rude huts, and in the midst of this hard fare, an enviable happiness, which, I doubt is not to be found in the palaces of the great, or among the delicious viands of royal tables. A cheerfulness and perfect tranquillity shone in the countenances of these poor people, and evidently possessed their hearts. Their ruinous cottages, which must be viewed with pity and contempt by the rich and great, to them were dear; and the food, which the luxurious would have rejected as insipid or nauseous, to their palates had an exquisite flavour. But the frugal meals of these islanders are always seasoned with a sauce which never accompanies the dishes at the tables of the great, I mean hunger and thirst, which render every meat delicious and every beverage grateful. The labour of their hands and the sweat of their brow secure an exquisite relish for their scanty fare.

As to the content and tranquillity of these islanders, and the affection they bear their native country, I do not think I should greatly err, were I to ascribe it to the happy temperature of the climate, and the quality of the air, which, when pure, so much contributes to maintain in us the proper harmony between the solids and the fluids, or the state of perfect health. A proof of this I experienced in myself. Notwithstanding the continual and great fatigues I underwent in my excursions among those rocks, and notwithstanding my advanced age, I felt in myself an energy and vigour of body, an agility and liveliness of mind, and a certain animation of my whole frame, which I had experienced no where else, except on the summit of mount Etna. In countries infested with impure air and thick vapours, I have never been able to apply myself to my favourite studies immediately after dinner, but under this sky, which is so rarely overclouded with vapours, I could write on the spot, at any time, a part of those observations I am now about to present to the public. How immense the difference between this most pure and almost celestial air, and the fœtid and foggy atmosphere of some of the low plains of Lombardy, surrounded by stagnant and filthy waters and unhealthy rice-grounds, producing continual clouds and fogs in winter, and obstinate fevers in summer; where the spirits are depressed, and rendered dull; and where, to complete the catalogue of ills and inconveniences; innumerable hosts of frogs, in the warm season, both by night and day, deafen the ear with their incessant croakings!

CHAP. XXV.—STATE IN WHICH THE AUTHOR FOUND MESSINA AFTER THE EARTHQUAKE IN 1783.—ACCOUNT OF THE CALAMITOUS ACCIDENTS WHICH BEFEL THAT UNFORTUNATE CITY.

Great numbers of the people of Scilla drowned by the waves of the sea.—A long range of palaces adjoining to the harbour, almost all destroyed.—Prodigious number of edifices within the city either thrown down, or on the point of falling.—Wooden sheds erected by the people of Messina to lodge in till the houses could be rebuilt.—Injurious effects produced by fear which had seized entirely on the minds of the inhabitants.—Account of the different dreadful shocks which laid waste the city, and circumstances by which they proceeded and accompanied.—Other shocks followed, but successively weaker.—The buildings of which the foundation was granite least damaged.—The mole, which was constructed in ground not sufficiently solid, entirely carried away and buried in the sea.—Enumeration of the more considerable edifices which were reduced to ruins.—Incalculable losses sustained by the destruction of the monuments of the arts, and the property buried under the ruins, or consumed by the fires which broke out after the earthquake in different parts of the city.—Exertions of the King of the Two Sicilies to restore Messina to its former flourishing state.

IN the forenoon of the 14th of October, I left the Eolian isles, and sailed from Lipari, in a felucca, for Messina, which is distant from that island thirty miles, but where I did not arrive till the middle of the next day; partly from having stopped some time to make observations on the granites of Melazzo, and from the want of wind, which obliged the mariners to have recourse to their oars. With these islands I was to dismiss every idea of volcanos either still burning or extinct, as that part of Sicily to which I was approaching exhibited not the least trace of that nature. I do not mean to say that at different times it may not have suffered by their destructive effects, if it be true, as I believe it to be, that partial earthquakes, that is, those which are felt through a not very extensive tract of country, and at a small distance from a volcano, originate either mediately or immediately from that volcano. In fact, what island has suffered more in this manner than Sicily, and that from nourishing within its bosom the Etnean conflagrations? When I travelled in those parts, the dreadful effects of the earthquake of 1783 were the common subject of discourse. On my entering, in the felucca, the Strait of Messina, some of the people who were with me pointed out to me the shore of Scilla where a great number of people were drowned at that calamitous time. A dreadful shock of an earthquake took place, about noon, on the 5th of February of the above year, which terrifying the people of Scilla, they fled in crowds to the shore, when, about eight o'clock the following night, according to the Italian reckoning*, another violent shock succeeded, in which the waves rose so high that they covered the whole shore and out of more than a thousand persons who were there collected, among whom was the prince of Scilla himself, not one escaped to relate and mourn the fate of the rest. The furious waves, rushing into the Strait, penetrated to the harbour of Messina, and nearly sunk the vessels there at anchor.

When I arrived opposite to the city, I began to see the fatal and ruinous effects of this dreadful earthquake. The curvature of the harbour was formerly embellished for the extent of more than a mile, with a continued range of superb palaces, three stories in

* About one in the morning.

height, usually called the *Palazzata*, inhabited by merchants and other persons of opulence, which formed a kind of superb amphitheatre. The upper story and a part of the second of these buildings were entirely thrown down, the lower greatly torn and damaged, and the whole of this extensive pile deserted by its inhabitants.

When I entered the city, every object which met my view tended to awaken melancholy sentiments and commiseration. Excepting some of the wider and more frequented streets, the rest were all heaps of ruins, either piled up on each side, or scattered in the middle, and rendering it impossible to pass them. Many of the houses were still in the same ruinous state in which they had been left by the earthquake; some entirely destroyed and levelled with the ground, others half thrown down, and others still standing, or rather hanging in the air, merely from the support afforded by the ruins around them. Those which had escaped this destruction appeared as if preserved by a miracle, torn and rent as they were. The cathedral was among the number of these fortunate edifices. This is a spacious building, of Gothic architecture. Its interior has suffered little or no damage. It is embellished with a number of columns of granite brought from an ancient Grecian temple, which once stood on the Faro (or Strait of Messina), and with elegant Mosaic work wrought with the most beautiful jaspers of Sicily.

The destruction of so great a number of houses as were thrown down by this dreadful earthquake obliged the people of Messina to take refuge in wooden sheds built for the occasion, many of which were still standing when I was there. They had begun, however, to rebuild the houses, but on a different plan from the old ones. They had observed that the highest had suffered most, and that, in the violent shocks of the earthquake, the beams, by continually and forcibly beating against the walls, had completed the ruin of the edifice. They therefore resolved to build them lower, and to construct the wood-work in such a manner that, in case of a similar visitation, the shock should be sustained by the whole of the building, and not by a part only. This precaution, it is evident, must be of the greatest utility, should the city again suffer a calamity of this nature.

Though it was now nearly the sixth year since that dreadful disaster, considerable remains of the dread, consternation, and, I may say, stupefaction, which usually accompany great terrors, were still manifest in the minds of the people of Messina. They had still present in their memory all the circumstances of that dreadful time; nor could I listen to the narrative they gave of them without shuddering.

That ancient city, which had so repeatedly suffered, was not destroyed by one but several earthquakes, which lasted in successive shocks, from the 5th to the 7th of February 1783. The most destructive was that of the 5th, but an interval of some minutes elapsing between the first and second shock, the inhabitants had time to quit their houses, and fly to the open plain. Hence the number of those who were killed was not proportionate to the quantity of ruins. They did not exceed eight hundred.

In a memoir relative to the earthquakes in that part of Calabria opposite to Messina, which happened at the same time, it is said that, before the first shock, the dogs in the city began to howl violently, and were killed by public order. On my enquiring of the people of the country, they assured me that the fact was false, and that no other phenomenon preceded this calamity but the flight of the sea-mews and some other birds from the sea to the mountains, as they usually do on the approach of a tempest. A very violent noise, resembling that of a number of carriages rattling over a stone-bridge, was the first symptom, while at the same time a thick cloud arose from Calabria, which was the centre of the earthquake, the propagation of which was successively apparent by the

fall of buildings from the point of the Faro to the city of Messina, as if at that point a mine had been fired which extended along the shore and continued into the city. The shock was most violent, and the motion extremely irregular. In no part were any fire or sparks observed. The ground along the shore opened in fissures parallel to it; and though in some places these continued more than a month, the dread and consternation with which every one was seized, prevented any attempt to measure them.

After the first shock, which, as we have said, took place about noon, on the 5th of February, the earth continued incessantly to tremble, sometimes with a slighter and sometimes a more violent motion; till at eight the following night another tremendous shock, which was fatal to the people of Scilla, completed the destruction of the remainder of the fabrics of Messina. The earthquakes did not cease till the 7th, when another dreadful shock spent its rage upon the ruins.

From that time till my arrival at Messina, shocks have continued to be felt, but gradually diminishing in force and number; and in 1789 and 1790, only four or five were observed, and those so extremely feeble, that, in any other country less affected by fear and alarm, they might not have been noticed, or not supposed to be earthquakes*.

The loss was immense, and is difficult to calculate. Considering the buildings alone, it may be asserted without hesitation, that, dividing them into four parts, two were levelled with the ground; the third half laid in ruins, and the fourth greatly damaged. Among the latter were the houses situated on the declivity of the hills, which have for their foundation granite, as we shall notice again in another place. (Chap. XXIX.) Those which were most completely ruined, and likewise the first to fall, were such as stood in the plain, and especially on the curvature of the harbour, on a ground less solid, as it had been formed by the washing and depositions of the sea. The mole of the harbour, which extended more than a mile in length, and was resorted to for the beauty of the prospect, was entirely swallowed up by the sea, so that no vestige of it remained to point out where it once was.

Among the ruined edifices the most considerable was the above-mentioned *Palazzata*, called likewise the maritime theatre; the royal palace; the palace of the senate, of noble architecture; the exchange of the merchants; the celebrated college, with the temple annexed; the church and professional-house of the ex-jesuits; the archbishop's palace, with the basilica of San. Niccolo; the seminary of the clergy, the hall of the tribunals, the church of the annunciation of the Theatines; that of the Carmelites, and of the priory of the Hierosolymitans, with several other fabrics both sacred and profane; without mentioning the palaces of the nobles and opulent citizens, all of an elegant architecture.

* In the following years, however, earthquakes again renewed the terrors of the people. The following is the extract of a letter from the Abbate Grano to me, of the 11th of May 1792:

"Yesterday we had a whole day, as I may say, full of earthquakes. I counted as many as thirty shocks, but all slight, and which occasioned no damage."

I embrace with the utmost pleasure this opportunity of thus publicly expressing my gratitude to and doing justice to the merits of this my illustrious friend, the Messinese nobleman abovementioned, and whom I shall again have occasion to cite.

As he is versed in the studies of philosophy and natural history, he had the goodness to accompany me in my excursions in different parts of his country, and his scientific assistance was of the greatest advantage to me. This assistance he not only afforded me when present, but even when absent, furnishing me with various local notices which might render my accounts relative to those countries more interesting; and his industry and circumspection in the examination of nature, and his sincere love of the investigation of truth, leave no doubt of the accuracy of his observations.

It is impossible to estimate the loss suffered by the destruction of the numerous monuments of the arts, libraries, and galleries of pictures, with which Messina was embellished, where the imitative arts had long flourished.

Equally impossible is it to calculate the loss sustained by the valuable effects that were buried beneath the ruins, or burned in the fires which after the earthquake broke out in various parts of the city: We must also add the expence of building the wooden sheds and huts necessary to shelter the inhabitants, and for the reception of such moveables or commodities as had been saved from the ruins; which expence was extremely great from the high price to which all the materials for building immediately rose, and the great wages required by workmen of every kind.

Yet, notwithstanding all these losses and expences, which must greatly have impoverished the country, not a single merchant became a bankrupt; a circumstance which redounds highly to the honour of Messina, as it is certain that no event can happen which furnishes a more plausible excuse to the fraudulent dealer than an earthquake.

The King of the Two Sicilies has omitted no means that may contribute to the restoration of Messina. He has exempted it from all public imposts, given considerable sums from his own purse, granted a free port, jurisdiction of magistrates, &c. Yet the immense losses the city has suffered, notwithstanding every assistance, cannot be repaired under a great length of time.

The buildings have since been considerably increased and improved, so that more than one half of the city is now rebuilt, and the people have left the sheds and taken possession of the new houses.

It appeared to me that this concise relation of the late dreadful earthquakes at Messina, and their consequences, would be acceptable to the curious and learned reader. We will now proceed to the description of other objects deserving attention in this celebrated strait and its mountainous environs.

CHAP. XXVI. — OBSERVATIONS ON SCYLLA AND CHARYBDIS.

A kind of confused noise, like the barking of dogs, heard on approaching the rock of Scylla, produced by the dashing of the waves of the sea.—Images highly resembling nature exhibited by Homer and Virgil in their personifications of Scylla.—The appearance of this rock the same at present as in the time of the Greek poet.—The sea there of the same height as formerly.—Great danger of dashing on the rock of Scylla when the current runs from south to north, and impetuous south wind blows at the same time.—Mariners at Messina, whose business it is to assist vessels in danger.—Ships easily wrecked without this assistance, though those who steer them should be very expert seamen.—Tempest observed by the author in the Strait of Messina, and the courage with which these Messinese sailors brought a vessel in distress safely into harbour.—Precise situation of Charybdis.—Until the present time considered as a true whirlpool.—The fragments of ships swallowed up in it carried, as some have believed, thirty miles.—Anecdote relative to this opinion.—Phenomena of the current of the Strait, which ascends and descends by intervals.—Visit of the author to Charybdis.—Its appearance as first seen from the shore.—Observations made on a nearer approach, and on entering it in a boat.—Charybdis not properly a whirlpool, but an incessant motion of agitated waters, which ascend, descend, dash, and rebound.—Consequences which followed on throwing certain bodies into it.—No gulph below Charybdis.—Depth of the sea much less there than in the middle of the Strait.—Charybdis cannot even be called a whirlpool in tempestuous weather.—Cause of the loss of ships that are drawn into it.—Recent shipwreck which happened in it without any appearance of a whirlpool.—Origin of this error.—None of the numerous writers who have mentioned Charybdis, say that they had visited and examined it.—Charybdis twelve miles distant from Scylla, though Homer styles it very near.—Impossible that any such change can have taken place in the Strait of Messina, as to have removed Charybdis so far from Scylla.—Change that has happened in the present age, much posterior to the date of the accounts of a number of writers who place Charybdis in the situation where it is now found.—Truth and physical explanation of the proverb, that “he who endeavours to shun Charybdis dashes upon Scylla.”—Scylla and Charybdis, according to the ancients, dangerous from frequent tempests and shipwrecks.—Very different in the present times.—Enquiry into the cause of this difference.—It probably is to be ascribed to the improvements made in the art of navigation.—Examples in proof of this afforded by the Adriatic and the Cape of Good Hope.

SCYLLA and Charybdis, according to the fables of the poets, are two sea-monsters whose dreadful jaws are continually distended to swallow unhappy mariners; the one situated on the right, and the other on the left extremity of the strait of Messina, where Sicily fronts Italy.

Dextrum Scylla latus, lævum implacata Charybdis
 Obsidet, atque imo barathri ter gurgite vastos
 Sorbet in abruptum fluctus, rursusque sub auras
 Erigit alternos, et sidera verberat unda.
 At Scyllam cæcis cohibet spelunca latebris
 Ora exertantem, et naves in faxa trahentem.
 I rima hominis facies et pulchro pectore virgo
 Pube tenus; postrema immani corpore præitis
 Delphinum caudas utero commissa luporum.

VIRG. ÆNEID, lib. iii.

Far on the right her dogs foul Scylla hides;
 Charybdis roaring on the left presides,
 And in her greedy whirlpool sucks the tides.
 Then spouts them from below; with fury driv'n,
 The waves mount up and wash the face of heav'n.
 But Scylla from her den, with open jaws,
 The sinking vessel in her eddy draws,
 Then dashes on the rocks: a human face,
 And virgin bosom, hide her tail's disgrace;
 Her parts obscene below the waves descend,
 With dogs inclos'd, and in a dolphin end.

DRYDEN.

I have no difficulty in availing myself of the description of a poet in a work dedicated to the investigation of truth; nor shall I hesitate to cite similar passages from another poet, since, however exaggerated these may be by the glowing colours of imagination, they contain truth, and afford a subject for interesting enquiries.

I should have thought myself to have merited the greatest censure if, when I was in the Strait of Messina, I had not visited two places of which so much has been written, and which have been rendered so famous by the numerous shipwrecks they have occasioned.

I first proceeded in a small boat to Scylla. This is a lofty rock, distant twelve miles from Messina, which rises almost perpendicularly from the sea, on the shore of Calabria, and beyond which is the small city of the same name. Though there was scarcely any wind, I began to hear, two miles before I came to the rock, a murmur and noise, like a confused barking of dogs, and on a nearer approach readily discovered the cause. This rock in its lower part contains a number of caverns; one of the largest of which is called by the people there *Dragara*. The waves, when in the least agitated, rushing into these caverns, break, dash, throw up frothy bubbles, and thus occasion these various and multiplied sounds. I then perceived with how much truth and resemblance of nature Homer and Virgil, in their personifications of Scylla, had portrayed this scene, by describing the monster they drew as lurking in the darkness of a vast cavern, surrounded by ravenous, barking mastiffs, together with wolves to increase the horror.

Ἔβη δ' ἐν Σκυλλῇ ναεὶ δεινὸν λελακνῶν
 Τῆς ποτὶ Φαιή μιν ὕψι σκυλακὸς νεογῆλος
 Γένειαι.

HOM. ODYS. XII.

Here Scylla bellows from her dire abodes,
 Tremendous pest! abhorr'd by man and gods!
 Hideous her voice, and with less terrors roar
 The whelp of lions in the midnight hour.

POPE.

The Greek poet, when he portrays the rock which is the habitation of Scylla, finishes the picture higher than the Latin, by representing it as so lofty that its summit is continually wrapped in the clouds; and so steep, smooth, and slippery, that no mortal could ascend it, though he had twenty hands and twenty feet.

Οἳ δὲ θυμὸν σκοπέλοισι, ὃ μὲν οὐρανὸν εὐρεῖν ἰκανεῖ
 Ὅσσῃ κορυφῇ νεφέλῃ δὲ μιν ἀμφιέσθηκε
 Κυανητὸ μὲν οὐπὸς ἔσσι οὐδὲ πὸς αἰθέρη
 Κεῖνου ἔχει κορυφῆν, οὐτ' ἐν δίρει, οὐτ' ἐν οὐρῇ
 Οὐδὲ κεν ἀμβλαῖν βέβηκεν ἀνὴρ οὐ καλὰ βλαῖν
 Οὐδ' ἐν ἑὶ χεῖρες γὰρ εἰκόσι, καὶ ποδὲς πέν
 Πέρε γὰρ λῆς ἐστὶ περιέσση εἰκυνία.

HOM. OD. XII.

High in the air the rock its summit throws
 In brooding tempests and in rolling clouds;

Loud

Loud storms around, and mists eternal rise,
 Beat its bleak brow, and intercept the skies.
 When all the broad expansion bright with day
 Glows with th' autumnal or the summer ray :
 The summer and the autumn glow in vain ;
 The sky for ever low'rs, for ever clouds remain.
 Impervious to the step of man it stands ;
 Though borne by twenty feet, though arm'd with twenty hands.
 Smooth as the polish of the mirror rise
 The slippery sides, and shoot into the skies.

POPE.

Such, three thousand years ago, or nearly so, appeared the rock of Scylla, according to the observations of Homer ; and such is nearly its appearance at this day.

The accuracy of this truly "first great painter of antiquity," which has likewise been observed by scientific travellers in other descriptions which he has given, shews that the level of the waters of the sea was at that time at nearly the same height as at present, since, had it sunk only a few fathoms, it must have left the foot of the rock, which according to my observations is not very deep, entirely dry. And this I consider as one among several strong arguments, that the most remarkable sinkings of the sea are anterior to the time of Homer.

Such is the situation and appearance of Scylla : let us now consider the danger it occasions to mariners. Though the tide is almost imperceptible in the open parts of the Mediterranean, it is very strong in the Strait of Messina, in consequence of the narrowness of the channel, and is regulated, as in other places, by the periodical elevations and depressions of the water. Where the flow or current is accompanied by a wind blowing the same way, vessels have nothing to fear ; since they either do not enter the Strait, both the wind and the stream opposing them, but cast anchor at the entrance ; or if both are favourable enter on full sail, and pass through with such rapidity that they seem to fly over the water. But when the current runs from south to north, and the north wind blows hard at the same time, the ship which expected easily to pass the Strait with the wind in its stern, on its entering the channel is resisted by the opposite current, and impelled by two forces in contrary directions, is at length dashed on the rock of Scylla, or driven on the neighbouring sands ; unless the pilot shall apply for the succour necessary for his preservation. For to give assistance in case of such accidents, four-and-twenty of the strongest, boldest, and most experienced sailors, well acquainted with the place, are stationed night and day along the shore of Messina, who, at the report of guns fired as signals of distress from any vessel, hasten to its assistance, and tow it with one of their light boats. The current, where it is strongest, does not extend over the whole Strait, but winds through it in intricate meanders, with the course of which these men are perfectly acquainted, and are thus able to guide the ship in such a manner as to avoid it. Should the pilot, however, confiding in his own skill, contempt or neglect this assistance, however great his ability or experience, he would run the most imminent risk of being shipwrecked. In this agitation and conflict of the waters, forced one way by the current, and driven in a contrary direction by the wind, it is useless to throw the line to discover the depth of the bottom, the violence of the current frequently carrying the lead almost on the surface of the water. The strongest cables, though some feet in circumference, break like small cords. Should two or three anchors be thrown out, the bottom is so rocky that they either take no hold, or, if they should, are soon loosened by the violence of the waves. Every expedient afforded by the art of navigation, though it might succeed in saving a ship in other parts of the Mediterranean, or even the tremendous ocean, is useless here. The only means of avoiding being dashed against the rocks,

or driven upon the sands, in the midst of this furious contest of the winds and waves, is to have recourse to the skill and courage of these Messinese seamen.

In proof of the truth of this assertion, I might adduce many instances related to me by persons deserving of credit. But I was myself an eye-witness to the situation of a trading vessel from Marseilles, which had one day entered the Strait by the mouth on the north side, at the time that I was on a hill looking towards the sea. The current and a north wind, which then blew strong, being both in its favour, the vessel proceeded under full sail into, and had passed one half of the Strait, when on a sudden the sky became overcast with thick clouds, and violent gusts of wind arose, which in an instant changed the direction of the current, and turned up the sea from its bottom. The mariners had scarcely time to hand the sails, while the furious waves broke over the ship on every side. Whether they merely followed the practice usual with ships in distress, or whether they were acquainted with the laudable custom of the Messinese, I cannot say; but they fired two guns: immediately upon which one of the barks employed on this service hastened to the assistance of the distressed vessel, and taking it in tow, began to make every exertion to carry it safely into the harbour.

If I had seen with fear and shuddering the danger of the sailors on board the vessel, which I expected every moment would be swallowed up in the waves; I beheld with wonder and pleasure the address and bravery of the Messinese mariners, who had undertaken to steer safely through so stormy a sea the ship entrusted to their care. They extricated it from the current which impelled it towards destruction; changed the helm to this side or to that; reefed or let out the sails, as the wind increased or abated; avoided the impetuous shocks of the waves by meeting them with the prow, or opposing to them the side, as either method appeared most proper to break their violence; and by these and other manœuvres which I am unable to describe, these brave mariners, amid this dreadful conflict of the sea and the winds, succeeded in their undertaking, and brought the vessel safe into the harbour.

But enough of Scylla:—we will now proceed to Charybdis. This is situated within the Strait, in that part of the sea which lies between a projection of land named *Punta Secca*, and another projection on which stands the tower called *Lanterna*, or the light-house, a light being placed at its top to guide vessels which may enter the harbour by night.

On consulting the authors who have written of Charybdis, we find that they all supposed it to be a whirlpool. The first who has asserted this is Homer, who has represented Charybdis as a monster which three times in a day drinks up the water, and three times vomits it forth.

— δια Χάρυβδις ἀναρροῖδεν μέλαν ὕδωρ,
Τρεῖς μὲν γὰρ τ' ἀνυσσιν ἐπ' ἡμέλῃ, τρεῖς δ' ἀναρροῖδεν
Διόνων.

HOM. ODYSSEY. XII.

Beneath Charybdis holds her boisterous reign
Midst roaring whirlpools, and absorbs the main;
Thrice in her gulphs the boiling seas subside,
Thrice in dire thunders she refunds the tide.

POPE.

The description of Virgil above cited differs from that of Homer only in placing a deep gulph below. Strabo, Isidorus, Tzetzes, Hesychius, Didymus, Eustathius, &c. repeat the same. The Count de Buffon adopts the idea of Homer in full confidence, and places Charybdis among the most celebrated whirlpools of the sea; “Charybdis, in the Strait of Messina, absorbs and rejects the water three times in twenty-four hours*.” Strabo

* Buffon, Hist. Nat. tom. ii. in 12mo.

tells us, that the fragments of ships swallowed up in this whirlpool are carried by the current to the shore of Tauromenium (the present Taormina), thirty miles distant from Charybdis *. In confirmation of this tradition, an amusing though tragical anecdote is related of one Colas, a Messinean diver, who, from being able to remain a long time under the water, had acquired the surname of *Pesce* (the fish). It is reported that Frederick King of Sicily, coming to Messina purposely to see him, made trial of his abilities with a cruel kind of liberality, by throwing a golden cup into Charybdis, which, if he brought it up, was to be the reward of his resolution and dexterity. The hardy diver, after having twice astonished the spectators by remaining under water a prodigious length of time, when he plunged a third time appeared no more; but some days after his body was found on the coast near Taormina.

From the authorities here adduced, it is evident that Charybdis has hitherto been considered as a real whirlpool by both ancient and modern travellers who have given any account of it.

As I was therefore so near to this celebrated place, I determined to endeavour to ascertain if possible what it really is. It is distant from the shore of Messina about 750 feet, and is called by the people of the country *calofaro*, not from the agitation of the waves, as some have supposed, but from *καλος* and *φαιρος*; i. e. *the beautiful tower*, from the light-house erected near it for the guidance of vessels. The phenomenon of the calofaro is observable when the current is descending; for when the current sets in from the north, the pilots call it the *descending rema* †, or current; and when it runs from the south, the *ascending rema*. The current ascends or descends at the rising or setting of the moon, and continues for six hours. In the interval between each ascent or descent there is a calm which lasts at least a quarter of an hour, but not longer than an hour. Afterwards, at the rising or setting of the moon, the current enters from the north, making various angles of incidence with the shore, and at length reaches the calofaro. This delay sometimes continues two hours. Sometimes it immediately falls into the calofaro, and then experience has taught that it is a certain token of bad weather.

As I was assured by the pilots most experienced in this practical knowledge, that there was no danger in visiting the calofaro, I resolved to avail myself of the opportunity. The bark in which I made the experiment was managed by four expert mariners, who perceiving me somewhat intimidated as I approached the place, encouraged me, and assured me they would give me a very near view of the calofaro, and even carry me into it without the least danger.

When I observed Charybdis from the shore, it appeared like a group of tumultuous waters; which group as I approached became more extensive and more agitated. I was carried to the edge, where I stopped some time to make the requisite observations, and was then convinced, beyond the shadow of a doubt, that what I saw was by no means a vortex or a whirlpool.

Hydrologists teach us that by a whirlpool in a running water we are to understand that circular course which it takes in certain circumstances; and that this course or revolution generates in the middle a hollow inverted cone, of a greater or less depth, the internal sides of which have a spiral motion. But I perceived nothing of this kind in the calofaro. Its revolving motion was circumscribed to a circle of at most an hundred feet in diameter, within which limits there was no incurvation of any kind nor vertigi-

* Καταποθέντων δὲ καὶ διαλυθέντων τῶν ναυαγίων παρασύρεται πρὸς τὴν ἀκτὴν τῆς Ταυρομηνίας. Lib. vi.

† I have observed that at Messina, as well as in other parts of Sicily, words of the Greek language, which was once that of this island, are still retained. Thus the word *rema*, derived from ῥεῖν, a flowing or stream, is used to signify the current of this Strait.

nous motion, but an incessant undulation of agitated waters, which rose, fell, beat, and dashed on each other. Yet these irregular motions were so far placid, that nothing was to be feared in passing over the spot which I did; though our little bark rocked very much from the continual agitation, so that we were obliged constantly to make use of our oars to prevent its being driven out of the calofaro. I threw substances of different kinds into the stream. Such as were specifically heavier than the water, sunk and appeared no more; those which were lighter remained on the surface, but were soon driven out of the revolving circle by the agitation of the water.

Though from these observations I was convinced that there was no gulph under the calofaro, as otherwise there would have been a whirlpool, which would have carried down into it the floating substances, I determined to found the bottom with the plummet, and found its greatest depth did not exceed five hundred feet. I was likewise informed, to my no small surprise, that beyond the calofaro, towards the middle of the Strait, the depth was double.

I could not therefore but conclude from these facts, that at that time there was no whirlpool in Charybdis. I say *at that time*, since the case might be very different when the sea was tempestuous. I therefore made enquiry relative to this of the pilots, those especially who, from their tried experience, were appointed by the public to give assistance in storms to foreign vessels, and who had frequently seen Charybdis in its greatest fury. The following is the substance of the answers they gave me:

When the current and the wind are contrary to each other, and both in their greatest violence, especially when the scilocco, or south wind, blows, the swelling and dashing of the waves within the calofaro is much stronger, more impetuous, and more extensive. It then contains three or four small whirlpools, or even more, according to the greatness of its extent and violence. If at this time small vessels are driven into the calofaro by the current or the wind, they are seen to whirl round, rock, and plunge; but are never drawn down into the vortex. They only sink when filled with water by the waves beating over them. When vessels of a larger size are forced into it, whatever wind they have they cannot extricate themselves; their sails are useless; and after having been for some time tossed about by the waves, if they are not assisted by the pilots of the country, who know how to bring them out of the course of the current, they are furiously driven upon the neighbouring shore of the Lanterna, where they are wrecked, and the greater part of their crews perish in the waves*.

If we consider maturely these facts, we shall find that a great part of what has been written relative to Charybdis is very erroneous. We have seen how many authors, from Homer to the present time, have described it as a real whirlpool, or great gulph revolving in itself, within the circumference of which should any ship enter it is immediately drawn to the centre and swallowed up. When the current is dying away, or when there is no current, this description has no resemblance to truth—Charybdis is

* The following account of the shipwreck of a vessel in the calofaro was sent me, after my return from Sicily, by the Abbate Grano from Messina:

“About three weeks ago we were spectators of the sinking of a Neapolitan polacca in the calofaro, on its passage from Puglia, laden with corn. A most violent south-easterly wind blew, and the vessel, with all sails set, endeavoured to reach the harbour, standing off from the calofaro; but the head of the current from the entrance by the faro took her, and drew her impetuously into it; where, without being able to make use of her sails, she remained for some time tossed about by the waves, which at length either breaking over her, or opening her sides by their furious beating, sent her to the bottom. The crew, however, and a part of the cargo, were saved by the speedy assistance given by our mariners in two small barks, who had the courage to encounter the danger. You will perceive from this in what manner the waves may sink ships in Charybdis, without the necessity of supposing a whirlpool.”

then perfectly innocent, as I have been fully convinced by my own observations; and even when it is agitated and dangerous, it still contains no incavation or gulph of the nature of a vortex, but merely a strong agitation and dashing of its waves, which produces those small whirlings of its waters, which are only accidental, and not to be feared. So far likewise is Charybdis from drawing to itself and swallowing vessels, that it rather repels them and throws them to a distance.

This error has arisen like many others with respect to the productions of nature. Homer, in relating the voyage of Ulysses through the Strait of Messina, was the first who described Charybdis as an immense vortex which absorbs and rejects the water, and the ships that approach it; exemplifying his account by the fate of some of the companions of his hero, who were carried away by the whirlpool. The writers who came after him, whether poets, orators, historians, or geographers, have followed him in this description, without any one of them taking the pains to repair to the place and examine it himself. Even Fazello the Sicilian, who was so industrious in ascertaining facts, and whose accounts of his country are so accurate, clearly shews in his description of Charybdis that he had never observed it himself; and concludes his narration with the erroneous supposition above cited, that the things swallowed up by Charybdis are conveyed by submarine currents to the shores of Taormina.

Among all who have written on this subject, we only find Cluverius who seems, at least at first view, to have visited the place, I shall transcribe his words:

“Ego sane, cum Charybdis noscendæ gratia aliquot dies Messinæ subsisterem, et ab hominibus ejus loci, maximè vero nautis, non Siculis modo, sed et Belgis, Britannis et Gallis, qui hoc fretum frequentes navigant, diligentius eam rem sciscitarer, nihil omnino certi ipsis perdiscere potui, adeo scilicet totum negotium omnibus obscurum et incognitum erat. Tandem tamen reperi Charybdim, quæ incolis, patriis vocabulis, dicitur *calofaro*, sub prædicta ad Messanensem portum pharo esse mare rapide fluens, atque in vortices actum: quod non *τρίς ἐπ' ἡμέρας* ut tradit Homerus, id est *singulis diebus ter*, absorbet ingenti gurgite, revomitque aquas, sed quoties vehementiori fluctu fretum comitatur.”

“I remained some days at Messina, with a view to obtain some information relative to Charybdis; but though I made every enquiry of the people of the place, and principally the sailors, not the Sicilian only, but the Italian, Dutch, English, and French, who frequently navigate that strait, I could learn nothing satisfactory—so little was known by them on the subject. At length, however, I found Charybdis, which the natives call *Calofaro*, under the light-house before mentioned, near the harbour, to be a sea rapidly flowing, and forming vortices. It does not absorb the waters in its vast gulph, and reject them *thrice in a day*, as Homer tells us, but as often as the sea runs high in the Strait.”

From the expression “I found Charybdis” we might be induced to believe that he made his observations on the spot. It is certain, however, that he does not explicitly tell us so: and when treating of a phenomenon of which he was so anxious to obtain an accurate knowledge, which he could not procure even from the Messinese sailors, it is strongly to be presumed that he would not have suppressed a circumstance of that importance. As Charybdis may be seen from the shore, if he only went thither, and turned his eyes towards it, he might with truth assert he had discovered it. The other adjuncts to his account, that Charybdis is a rapid sea, and that it absorbs and rejects the water in a storm, convince me that he had not a just idea of it, but satisfied himself with the old tradition concerning Charybdis.

It may be observed that the situation of Charybdis, as it has been hitherto described, does not exactly agree with that assigned it by Homer. Let us refer to the poet. The goddess Circe gives the following directions to Ulysses, with respect to the navigation of the Strait of Messina :

Ὅτι δὲ δὴν σκοπεῖται, ὃ μὲν οὐραῖον εὐρυὸν ἔκτανε . . .
 Τὸν δ' ἑτέρον σκοπεῖται χθοναλωτέρῳ ὀφει Οὐδυσσεύ,
 Πλησιον ἀλλήλων καὶ κεν διαστεισεύας.
 Τῷ δ' ἐν ἑρμῆος ἔστι μέγας φέλλαισι τεθληώς,
 Τῷ δ' ὑπο δια Χάρυβδις ἀναρρέϊσθαι μέλαν ὕδωρ.

HOM. ODYS. XII.

High o'er the main two rocks exalt their brow . . .
 Close by, a rock of less enormous height
 Breaks the wild waves, and forms a dangerous streight,
 Full on its crown a fig's green branches rise,
 And shoot a leafy forest to the skies;
 Beneath, Charybdis holds her boist'rous reign
 Midst roaring whirlpools, and absorbs the main.

POPE.

The first of the rocks here mentioned by Homer is Scylla, which he describes at length; and near the other, according to this poet, Charybdis is situated. The distance from one of these rocks to the other is an arrow's flight, καὶ κεν διαστεισεύας, which does not at all accord with the present situation of Scylla. How are we to explain this disagreement? Shall we say that Homer, availing himself of the licence in which poets are indulged, has spoken hyperbolically? I know not whether the connoisseurs in poetry will permit such a licence. Or shall we suppose that Charybdis was once much nearer to Scylla; but that in a long series of ages, it has changed its place and removed under Messina? Such a suggestion might perhaps be favourably received, if in remote times any considerable change had taken place in the Strait; but we know not of any; and it is not probable that a change so remarkable as the removal of Charybdis from its place, would have been passed over in silence by Sicilian writers. Within the present century, it is true, this Strait, of which so much has been said, has become narrower, as we shall see in Chap. XXIX.; but at the same time we know that long before this event Charybdis was situated where it is at present. The ancient and uninterrupted tradition of the Messinese respecting this fact is confirmed by the authority of the most celebrated Italian, Latin, and Greek writers.—Pazello tells us, “Charybdis ex parte Siciliæ, paulo supra Messinam;”—“Charybdis is situated on the side of Sicily, a little beyond Messina.—Ovid says,

“Hinc ego dum muter, vel me Zanclea Charybdis
 Devoret!”

“Let dire Charybdis in Zanclean seas
 Devour me if I change!”

And it is well known that Zancle was the ancient name of Messina, now Messina. Tzetzes in Lycophron says, Ἡ Χάρυβδις περι Μεσηνὴν ἐστὶ,—“Charybdis is situated near Messina.”—Strabo likewise, after having mentioned Messina, proceeds, Δικινύλαι καὶ Χαρυβδὶς, μικρὸν πρὸς τῆς πόλεως, ἐν τῇ πορθύμα—“Charybdis is seen in the Strait a little before we reach the city.” Several other writers might be cited to the same purpose.

From all these reasons and historical testimonies we must then conclude that Homer was not exact with respect to the situation of Charybdis; nor can it be a great offence to say that, in this passage of his long poem he has certainly nodded. The accuracy of several of his descriptions of various places in Sicily cannot be denied. It is such that we must either suppose that he had himself travelled in those parts, as is the opinion of many; or at least that he had procured very faithful and circumstantial information from

from others. Of this the rocks of Scylla are an example. But as to the supposed whirlpool of Charybdis and its situation, I think we may venture to affirm he never saw it himself, and that the accounts he had received of it led him into error.

We will now enquire what foundation there is for the saying which became proverbial, that "he who endeavours to avoid Charybdis, dashes upon Scylla;" and which was applied by the ancients to those who, while they sought to shun one evil, fell into a worse.

On this subject I likewise made enquiries of the Messinese pilots above mentioned, and to what better masters could I apply for the elucidation of such a proverb? They told me that this misfortune, though not always, yet frequently happens, unless proper measures are taken in time to prevent it. If a ship be extricated from the fury of Charybdis, and carried by a strong southerly wind along the Strait, towards the northern entrance, it will pass out safely; but should it meet with a wind in a nearly opposite direction, it will become the sport of both these winds, and, unable to advance or recede, be driven in a middle course between their two directions, that is to say, full upon the rock of Scylla, if it be not immediately assisted by the pilots. They added, that in these hurricanes a land wind frequently rises, which descends from a narrow pass in Calabria, and increases the force with which the ship is impelled towards the rock.

Before I began to write on Scylla and Charybdis, I perused the greater part of the ancient authors who have written on the subject. I observe that they almost all represent these disastrous places in the most gloomy and terrifying colours, as continually the scene of tempests and shipwrecks. These terrors and this destruction, however, they are far from exhibiting in the present times; it rarely happening that any ships are lost in this channel, either because their pilots possess the knowledge requisite for their preservation, or because they apply for the necessary assistance. Whence then arises this great difference between ancient times and the present? Can we suppose that Scylla and Charybdis have changed their nature and become less dangerous? With respect to the former, we have seen that this hypothesis is contradicted by fact, Scylla still remaining such as it was in the time of Homer; and with regard to the latter, from the Strait of Messina becoming narrower, Charybdis must be at present more to be feared than formerly, as it is well known that an arm, channel, or strait of the sea is the more dangerous in proportion as it is narrow. I am rather of opinion that this difference arises from the improvement of the art of navigation, which formerly in its infancy dared not launch into the open sea, but only creep along the shore, as if holding it with its hand—

"Alter remus aquas, alter tibi ratat arenas,
Tutus eris; medio maxima turba mari."

PROPERT. lib. iii.

"To shun the dangers of the ocean, sweep
The sands with one oar, and with one the deep."

But time, study, and experience have rendered her more mature, better informed, and more courageous; so that she can now pass the widest seas, brave the most violent tempests, and laugh at the fears of her childhood.

To exemplify and support the probability of this opinion, it will not be necessary to recur to the early and rude ages; much more modern times will furnish us with sufficient proofs. That part of the Adriatic which separates Venice from Rovigno in Istria, is certainly not the most propitious sea to navigators. The danger of being hurried in six hours from one shore to the other, and there stranded; the frequency of violent winds which prevail there; the shallows and sand-banks which break the waves, and render them wild and irregular, may certainly cause some serious reflection in those who embark to make the passage. So late as the last century, the shipwrecks in this sea

were

were so numerous, and had so terrified the people of Rovigno, that when any one was obliged by urgent business or any other cause to go to Venice, he considered himself as more likely to die than live, and if he was the father of a family, used to make his will before he embarked. The Advocate Constantini, a native of that country, and a man of learning and ingenuity, told me when I was there, that he had read more than one of these testaments, deposited among the public archives.

But at present I will not say it is a diversion or pleasure to make this passage, since, as storms are not unfrequent, it is necessary to be cautious; but serious accidents rarely happen. I have myself three times made it without meeting with any cause of alarm. To what can this difference be attributed but to the improvement of the nautical art? Besides that the mariners of Rovigno were not then so expert in the management of their vessels as at present; they made use of certain barks of so improper a construction, as I was assured by the above-mentioned Constantini, that it was impossible they should long resist the violence of the sea. Those, on the contrary, that have been built since that time, being of a broad and flat figure, and very solid, are capable of withstanding the most furious storms. They are there called *bracere*, and are in great reputation in all the neighbouring countries. We here find a part of the sea, in which vessels were formerly so frequently wrecked, and which could not be traversed but at the risk of life, now deprived of all its terrors, and rendered easily passable, merely by the improvements made in the art of navigation.

As a farther and still more convincing proof that the dangers of Charybdis and Scylla, though in themselves the same that they anciently were, have been diminished, and the dread they inspired removed, by the rapid advances to perfection which this art has made in modern times, I shall adduce an example in another sea no less an object of terror from tempests and shipwrecks, I mean the Cape of Good Hope, called the Stormy Cape by the first discoverer, and by the mariners of those times the Raging Lion. How dreadful were the dangers of this place, where the two oceans descending down the opposite sides of Africa met and clashed together; where contending winds, whose power was greater in the boundless ocean; where mountainous waves, rocks, and whirlpools threatened inevitable destruction! What preparations, what caution, were thought necessary for the ship which was to make this dangerous passage! Able pilots who had frequently made the voyage; masts and yards secured by additional ropes; a large supply of sails and cables, thicker and stronger than usual; and a double rudder, that in case one should be damaged, there might be another to act. The mariners were to be fastened to their posts by strong ropes; the passengers shut down below, and the deck left clear for the crew, a number of whom stood with hatchets in their hands, ready to cut away the masts should it be necessary. The guns were stowed in the hold as ballast, and the port-holes, windows, and every kind of aperture, carefully closed. Such were the precautions taken in the last century on doubling the Cape of Good Hope; but how few of them are now necessary to perform this voyage in perfect safety! Of this I have had the satisfaction to be certified by an English gentleman, Mr. Macpherson, with whom I had the pleasure of conversing, in Pavia, in July 1790, and who had twice doubled this Cape in his voyages to India; a gentleman of great respectability for his information, for the various long voyages he has made, and the honourable employments he has held.

The facility with which this passage may now be made, is therefore the consequence of the perfection to which the art of navigation has arrived; and the same we may conclude with respect to Charybdis and Scylla, which at present have nothing terrible but the name, to those who pass them with the requisite precautions*.

* The minute objects of the concluding chapters are of little consequence.

A
DISSERTATION
ON THE
EARTHQUAKES IN CALABRIA ULTRA;
WHICH HAPPENED IN THE YEAR MDCCLXXXIII.

By the Commander
DEODATUS DE DOLOMIEU.

[Translated from one of the very few Copies published at Rome in 1784.]

DEDICATED TO DE LASTERIE DU SAILLANT, COMMANDER OF MALTA.

I MIGHT adorn this dedication with the name of some of the great on earth, make display of their pompous titles, their imaginary virtues; I prefer that of my friend, a friend of twenty years standing, whose title to eulogy this circumstance will stamp. May he deign to accept kindly this public acknowledgement of my attachment.

The Chev. *DEODATUS DE DOLOMIEU.*

PREFACE.

THE prevalence of contrary winds detaining me on the shores of Calabria Ultra during the whole of the months of February and March 1784, and obliging me in succession to touch at almost all the towns in its western shores, I was enabled to make incursions into this unfortunate province; had time to examine all its ruins, and witness the extent of its misfortune. My inclination for lithology induced me to pay attention to the nature of its soil, and the composition of its mountains, and what I now present is the result of my researches. I have collected principal facts alone, such as local derangements will attest for years to come, and which for centuries may continue of interest to the student of nature. Other details form no part of my plan. I shall neither give a circumstantial journal of the earthquakes nor a statement of the population and loss at each several place. For this I should have only to copy previous accounts, and my intention is not to make a great book, or to repeat what others have said before. I adhere to that chiefly which has been somewhat neglected, that is to say, the explaining the nature of the soil, and deducing therefrom the principal phenomena which accompanied the shocks. I have yet further for object to do away that idea of something miraculous to which preceding accounts may have given birth, relating mountains to have dashed against each other, entire fields to have been transported to a considerable distance from their former site, or thrown from one to the other side of the valley, &c. facts, not wide of truth, which must appear highly extraordinary divested of their local circumstances, but which a knowledge of the soil will shew to be natural enough. I venture a theoretic opinion also which appears to me very probable, but to which I do not attach an importance equal to that of an exact knowledge of the facts whence it is deduced. I say very little of Messina, or Sicily. In the account afforded by M. L'Allimand the French Consul is given every thing of consequence relative to

the destruction of that city, whose fate, dreadful as it was, is however no wise comparable to that of the towns of the plain of Calabria.

A multitude of details which I have omitted may be seen in different relations published at Naples, particularly in that of Doctor Vivenzio. But facts, interesting to the naturalist, are there extremely rare, and indeed the work appears to be written (like many others on the subject) rather to strengthen the theory which ascribes earthquakes to electricity, than to give any description of the phenomena which accompanied the destruction of Calabria.

The account of Sir William Hamilton is the perception of a good observer, who had but a few instants to spare for examination on his trip to Calabria.

Had the commissioners sent by the Academy of Naples to Calabria thought fit to publish the result of their researches, I should have suppressed this dissertation, since assuredly I could have no room to add any thing to the observations which they ought to have made.

I have added in notes some particulars, which, though unessential to the object of the dissertation, may yet seem to make the text more easy of comprehension; they contain moreover some facts interesting in other points of view.

I was accompanied by the Chevalier de Godechart, a young man full of zeal, ardour, and sensibility. He was of much utility to me in my scrutiny, the fatigues attendant on which he shared with me with great patience and resolution.

DISSERTATION, &c.

*A tempestate nos vindicant portus; nimborum vim effusum et sine fine cadentes aquas, tellus propellant: fugientes non sequitur incendium: adversus tonitrua et minas cœli, subterranæ domus et desossi in altum specus remedia sunt. In pestilentia mutare sede licet. Nullum malum sine effugio est. Hoc malum latissime patet inevitabile, avidum, publice noxium. Non enim domos solum, aut familias, aut urbes singulas hausit, sed gentes totas, regionesque subvertit.**
Seneca, *Quest. Natur.* Lib. VI.

OF all destructive scourges earthquakes are the most dreadful, the most calculated to spread terror and consternation wherever they are felt. Nature, convulsed, seems tending to destruction, the world towards an end. Similar to the electric shock which strikes ere the thunders be heard to warn of the threatened harm, earthquakes shake, overthrow, and destroy, without any thing foretelling their approach, without an instant's time to avoid the impending danger†. Animals, even the most stupid among them, have an advantage denied to man, a foreboding of these fatal events; their instinct, or their senses more delicate than ours, by impressions of which we have no conception, admonish them some seconds beforehand, when, by their cries and impatience, they shew their inquietude and dread‡. Yet would a similar capacity at all times enable man to place

* Ports secure us from storms, the sheltering roof from shower-effusing clouds and the continued torrent; fire follows not who fly; caves underground, grotts dug below the waves, shield from the bolts and threatening shafts of heaven; the plague is avoided by a change of place: for every ill *beside* there is a remedy; this widest spreads inevitable its avidity, and general its harm. For not only does it destroy houses, families, or single towns, it overturns whole nations, and lays whole regions waste.

† The destructive shock of the 5th of February was sudden, instantaneous; nothing foretold, nothing announced its happening; it shook and overturned at once, nor allowed of time to fly.

‡ The prescience of animals of the approach of earthquakes is a singular phenomenon, and is the more surprising to us from our ignorance by what sense they receive the intimation. It is common to all species, particularly

place himself in safety? No, not the quickest flight, the strongest * or the slightest and least elevated building, not all the precautions of human foresight could shield him from the threatened death. In the midst of his flight he is swallowed by the gaping earth †; the ground on which is built his gorgeous palace, or his humble cot, is either sunk in an abyss, or carried away to a distance, entirely overthrown; now a mountain slips from its base and loads it with its ruin; and now the valleys close and give it burial. The loss of his property, although the whole should go, the loss of his family, his friends, nay death itself is not the greatest ill he has to dread. Interred alive beneath a heap of ruins, which yet break not the vault above his head where he has sought asylum, he is condemned to die of hunger and madness ‡, cursing his friends and family, whose indifference he accuses, and tardiness to assist: unwilling they have shared a similar fate §, unknowing that those who survive this almost general catastrophe attempt in vain to release him from the piles with which he is overwhelmed. They hear his voice, his cries,

particularly dogs, geese, and domestic fowls. The howlings of the dogs in the streets of Messina were so violent, that they were ordered to be killed. During eclipses animals evince a nearly similar inquietude; on the annular eclipse of the sun in 1764, the agitation and cries of domestic animals continued for a great part of the time, notwithstanding its light was no more diminished by it, than it would have been by the interposition of a dark, thick cloud: the difference of the heat of the atmosphere was scarcely sensible. What impression then can animals have of the nature of the body which eclipses the sun? How are they able to divine that it is a different circumstance from the sun's being veiled by a cloud which intercepts the light?

* Part of the misfortunes of Messina are attributable to the want of solidity in the buildings; the ruin of this town was promoted a long time before by the earthquakes which at different times since 1693 had shaken and loosened all the houses; and the want of population and means of repairation. A new convent solidly constructed in the middle of the town suffered no injury. But in Calabria nothing was capable of resisting the violence of the shocks. The handsome convent of Benedictines at Soriano, rebuilt with equal magnificence and solidity after the earthquakes of 1639, was nearly levelled with the ground; notwithstanding, for the purpose of avoiding the same fate it experienced at that period, (an epoch similarly disastrous to Calabria,) the walls were made extremely thick, and the foundations peculiarly good, and of excellent materials.

† A number of peasants belonging to the plain of Calabria flying across the country were engulfed in large chasms, which opened under their feet, and disappeared;

Insuper tonitrua sub pedibus hiat abyssus.

‡ A fourth part of the victims of the earthquake of February 5th, who were buried alive under the crumbled ruins of their buildings, would have survived if they had been promptly succoured. But in such a general disaster there was a want of hands, every one was occupied with his own misfortunes or those of his family, and paid no attention to indifferent persons. At one instant the most affecting instances of filial and conjugal affection, even to the extent of self-devotion, were exhibited, and acts of cruelty and atrocity which make humanity shudder. Whilst here you saw a mother with dishevelled hair, and covered over with blood, hasten to the still undulating spot where a falling beam had struck her infant from her arms, there a bewildered husband braving death itself in search of a darling spouse; at the same time might be seen monsters dashing forwards in midst of the tottering walls, fearless of every danger, trampling beneath their feet the half interred bodies of men who claimed their succour in their way, to satisfy their blind cupidity, by the plunder of the houses of the rich. They stripped the living bodies of such unfortunate beings as would even have repaid with usury their charitable aid. I lodged at *Pollena* in the hut of a gentleman who was interred beneath the ruins of his house, his body immured, his legs aloft in the air. His own servant, in lieu of affording him assistance, after taking the silver buckles from his shoes, ran off with his booty. For the most part, the lower order of people in Calabria evinced incredible depravity in midst of all the horrors of the earthquake. The greater part of the farming-men were in the fields upon the shock of the 5th of February taking place; they immediately rushed to the towns still smothered in the dust occasioned by their recent fall: they flew to them, not to give assistance, not from any sentiment of humanity excited by such dreadful circumstances, but to plunder.

§ I have conversed with a great number of persons dug from the ruins in the different towns I visited, all of whom fancied their houses the only ones that had suffered, having no idea of the extent of the destruction, and wondered

cries, the bulk of ruin resists their efforts, and hinders his liberation *. They are unable to afford him the slightest comfort, and to the very last does he preserve the atrocious, the heart rending idea, that all his friends on earth were only wretches and most ungrateful monsters. But when fire joins its ravage to that of the quivering earth, to what new horror then is he not subject? By slow degrees it gains the fallen beams and different wood-work of the ruined buildings; it reaches him at last; penned in the fatal spot, all effort fruitless to avoid his fate, he perishes the death of sacrilegious criminals and regicides †, and curses with apparent reason a destiny which confounds, with the guilty, the innocent.

Such nevertheless was the fate of a part of the victims of the earthquake of 1783. Who then without shuddering can contemplate the disasters of Calabria? Who without a tear behold the finest country in nature ravaged with unexampled fury by earthquakes? Who in short contemplate the site of towns where even the ground on which they stood has disappeared, and the position of which was only to be determined by the objects with which it was surrounded. Such are the first ideas that occur to those travelling through Calabria Ultra; such the sensations I experienced at every step I took on visiting this unfortunate province in the months of February and March 1784; such indeed are the impressions which prevent our considering objects with sufficient deliberation to examine into effects and thence ascend to causes. The student of nature

wondered at the delay of assistance. A woman in the borough of *Cinco jundi* was found alive on the seventh day after the catastrophe. Two children near her had perished of hunger, and already were in a state of putrefaction. One reclined on its mother's thigh had infected the place of contact so as to occasion it to putrify. Numbers were buried for three, four, and five days; I saw them, spoke to, and questioned them respecting their sensations in this terrible predicament. Of all the physical evils they endured the most dreadful to them was thirst. The first expression manifested by animals also, some of which were restored to light after a fall of fifty days, was want of drink; their thirst was insatiable. Several persons thus buried alive supported their misfortune with unexampled constancy, a constancy of which one should think human nature, but from complete stupor of the intellectual faculties, could not be capable. A pretty woman of *Oppido*, but nineteen years of age, was at that instant near her time; she was buried beneath the ruins for the space of thirty hours, and, being extricated by her husband, was delivered a few hours after as safely as as if nothing had happened. I visited her hut, and among a number of questions, I asked what were her thoughts at the time. — “*I waited*,” was her reply.

* In many towns it happened that parents and faithful servants, in search of persons dear to them could hear their moans, could recognize their voices, were certain of the spot where they were buried; yet could not free them. The piled mats resisted all their strength, and made of no avail their zeal and efforts. In vain did they implore another's aid; their groans, their tears, were listened to by none. Stretched on the ruins, they were seen invoking death to release their relations from their horrid situation, invoking it for themselves, as the only alleviation of their misery. Yet even this comfort was denied them, as at times for days together they heard the moans of the wretched, buried beneath their feet.

Whole families were overwhelmed together, without a single individual escaping; in such cases the tombs were trampled on where they were inhumed alive, their voices were distinguished, yet would not their fate excite a single tear. At *Terra Nova*, four Augustine monks, who had taken refuge in a vaulted sacristy, the arch of which supported the immense ruins with which it was overwhelmed, made their cries heard from amidst the piled heap, for the space of four days ever; but one of the convent was saved, and of what avail were the strength of one to remove the quantity of rubbish which buried his companions? By degrees their voices died away, and several days after their four bodies were found clasped in each others arms.

More than half the victims crushed by the fall of *Terra Nova* remained amid the ruins, and when I passed by them on the 20th Feb. 1784, they exhaled a most insupportable and infectious stench.

† When all the buildings of the town of *Oppido* were levelled by the most violent shocks and elevations of the earth, the wood-work of part of the buildings overturned successively caught fire; hence it became impossible to forward any succour, and most of such as might have been saved from the ruins were made a prey to the flames. Twenty nuns of the order of St. Clair were discovered calcined beneath the wreck of their convent.

must be on his guard against these attacks of sensibility as well as against the warpings of his imagination to enable him to see no more in the origin of the misfortunes of a multitude of families, and the destruction of forty thousand of his fellow creatures, than a slight effort of nature *, and to qualify him to strip the various relations of all those disfigurements with which they have been clothed by terror and superstition.

History makes no mention of any earthquake the shocks of which were so violent, the effects so destructive, as those which desolated Calabria in the year 1783. This phenomenon singular enough is sufficiently imposing to interest the student of nature, even when stripped of the marvellous in which it has been dressed in previous relations; and will be best explained by fewest words. The shocks were extremely violent †; this is an indisputable fact. They produced in Calabria Ultra effects, consequential in themselves upon regarding local circumstances; this is a second truth which may require farther elucidation, and which I shall endeavour to render equally evident with the former, in describing the nature of the soil and the country on which it exerted its greatest violence. Thence shall I deduce the reason why certain towns were almost wholly exempt from the general scourge, notwithstanding they were comprehended within the space under which its strongest efforts were exhibited, near the center where the most violent shocks were felt; why other towns adjoining them remain but heaps of ruins; and why again others leave behind them no trace of their existence.

The shocks of the earthquake in Calabria however violent were experienced on a space by no means great, and appear to have had a local cause. Its limits were the extremity of Calabria Citra on the one side; eastward it exercised no great ravage beyond Cape Colonne; nor westward beyond the town of Amantea. Messina is the only town in Sicily which participated the disasters of the continent; and if beyond this town any slight oscillations were felt, they were no other than the result of a trivial revulsion. The space, therefore, on which this terrible scourge displayed itself, was a length of thirty leagues by the whole breadth of Calabria. Within this space, all places felt not equally the shocks, nor suffered all the same destruction. The variety of the consequences of this earthquake was as great as the diversity of positions. All did not receive similar shocks, and these effects remain inexplicable with those unacquainted with the nature of the soil and local circumstances.

Calabria Ultra, in its lower part, may be regarded as a peninsula terminating Italy, formed by the indentation of the opposite gulphs of *Squillacci* and *Sant Euphemia*. It is

* An effort but little more violent on the part of nature might have proved sufficient to cause a general catastrophe, to change entirely the present face of things, to plunge in eternal oblivion the present age, and ages gone before, to annihilate all monuments of the arts and sciences of man, and bring back human nature to its most early infancy. We calculate the effects of nature from our means alone; she appears to us terrible, and clad in all her might on diverging from any of those laws to which we rate her subject, and by which to our vision she seems to be influenced. Yet what to her, compared with the globe, is the space of a dozen of leagues? what indeed with regard to the solar system were the entire mutation of our continents? How many the general revolutions which the globe has experienced that we inhabit! How often has it changed its form! On all sides we discover vestiges of its revolutions and catastrophes; our imagination, which cannot embrace the whole of them, is lost in the gulph of time, before the date of history. He who first conceived that the ocean had changed its bed; that is to say, that formerly an order of things existed the reverse of their present state, imagined that he had advanced a highly bold opinion; our globe however may have experienced twenty similar changes. The supposition of one alone explains nothing. We trample in security on the wreck of, possibly, a dozen of former worlds; yet shudder if nature vary the least from her general plan.

† The shocks were so violent that men on the level plain were thrown down by them. Trees, supported by their trunks, bent even to the earth and touched it with their tops. Numbers were torn up by the roots, and others broken short to the ground.

traversed

traversed by a prolongation of the Appennines, which, describing a species of arch, terminate at Cape *Dell'Armi*, opposite to Taormina in Sicily, and fronting the Neptunian mountains, which, notwithstanding the channel which separates them, may be looked upon as a continuance of the same chain, being of similar nature, and running apparently in the same direction. Below the gulph of *Sant Euphemia* a ridge of the Appennines leaves the principal chain, extends almost at right angles in a western direction, forms the vast promontory terminated by Capes *Zambrone* and *Vaticano*, and encloses the gulph of *Sant Euphemia*. Another ridge proceeds in a similar direction below the immense mount *Aspramot*, and ends at the point of land called *Pezzo*, which jetting out opposite to Messina, incloses on one side the narrow channel called *El Faro*. The sort of basin formed by these mountains is what is called the plain of Calabria, or of Monte Leone, and most commonly *The Plain alone*. This name causes a false idea, for the soil inclosed within this space is neither even nor horizontal, as its title seems to indicate, but of unequal surface, and is traversed by vallies and deep ravines. Possibly its designation may be in contradistinction to the lofty mountains by which it is inclosed. The fur-

making the gulph or *Iuma*.
ridges of mountains, is it that the efforts of nature were most violent, this is the
fortunate soil which exhibits nothing but the ruins of the towns which formerly stood
there; here it is that all the inhabitants seemed doomed to inevitable death; this
therefore is that part of Calabria which I have most particularly to describe.

The Appennines, after running through Italy, and in their whole course exhibiting nothing but calcareous mountains, here raise their heads aloft, and shew the naked granite and slaty stone which are exhibited to view in them alone, and form the extremity of this long chain. These substances, which one would look upon as primitive in comparison to the formation of all others, and lower than which they are almost uniformly situated, seem to present an immoveable base; and the mountains which they constitute fixing their roots in the centre of the globe, ought to be exempt from every vicissitude; nevertheless, at their base was it that the most violent shocks were felt, nor were they themselves free from such convulsive motions as destroyed whatsoever was found at their feet.

The whole of the Appennines which overlook the plain, the summits or elevated groupes of some of which bear the distinctive names of *Monte Jago*, *Monte Sagra*, *Monte Caulone*, *Monte Asop*, *Aspramonte*, &c. is formed almost entirely of a hard and solid granite, composed of three substances, quartz, white felspar, and black mica. It is almost the only kind of stone the fragments of which are found at the foot of mountains, it is the only stone that is carried away by the torrents, and such buildings on the plain as are composed of solid materials are constructed of these alone*. On some masses of this granite, on the back of some mountains and on certain summits, are adherent deposits of calcareous stone, which look as if the remnants of larger masses, diminished by time and rain. On some summits, also, *roche de corne* is found, and slaty

* Materials for building are exceedingly rare throughout all this part of Calabria. The houses of the wealthy, and the churches, are built of stones carried along by the torrents; the cases for the windows and doors of granite hewn in the mountains, consequently very dear on account of the labour and expence of carriage to other places. The houses and inclosures of the poor are made of clay, mixed with sand and straw, shaped into bricks and dried in the sun. This dearth of materials for building will prevent a change of the site of several towns which would be much better placed a few miles from their former position, but the inhabitants refuse to go to a distance, expecting to find in the wreck of their ancient habitations materials wherewith to construct new dwellings.

schoerle (hornblend); fragments thereof are met with in the ruins of *Terra nova*, *Oppido*, and *Santa Christina*. These mountains are very steep, their summits bare, and many of them inaccessible. They wear that appearance of age and degradation so commonly observed in mountains of the same description: at their base, which is prolonged, have been successively deposited, to a very great depth, layers of quartzzy sand, galena, grey and white clay, and grains of felspar and mica proceeding from the decomposition of the granite; the whole mingled with shells, and marine fragments. This mass of matters, which have no connection with each other, and are without consistence, appears to be a deposit of the sea, which driven by the western wind beat against the foot of these mountains at a period much anterior to the present order of things, frittered off certain particles from the rock, and brought with it from its undulating motion some others from distances very remote.

This deposit, at first horizontal, from north to south and inclined from east to west, as appears by the direction of the strata afterwards received a new surface, either owing to currents of the sea itself, or torrents from the mountains, and was formed into the succession of hills, valleys, and plains, which, reclining on each other, terminate in a low shore on the margin of the sea. The progress and the spoils of vegetation, and other causes with which I am unacquainted, have clothed this moveable base with a stratum of vegetable earth, argillaceous, black, or reddish, very strong, very tenacious, and from two to four or five feet in thickness. This kind of outward bark gives a degree of solidity to the soil which is additionally bound together by the numerous roots of trees growing on its surface. These roots penetrate to a great depth in search of that humidity always contained in the lower part of the sand.

This part of Calabria is watered by streams from the upper mountains, well replenished in winter and spring, and which after rain or the thawing of snow precipitate themselves in torrents through the plain. Then do they bear away before them whatever they meet in their way, and when once they have made themselves a furrow through the vegetable earth, they easily work a passage in a soil which can make no resistance. Thus they make ravines of an extreme depth, at times six hundred feet, but the sides always remain steep and almost perpendicular, on account of the superior stratum of earth tessellated by the roots of trees, preventing the mass beneath from forming a sloping bank. The whole country therefore is cut in furrows, and gorges of great or smaller depth and width, in which small rivers run whose tributary waters form the two rivers *Metramo* and *Petrizzo*. These fall into the sea at a short distance from each other, flowing through the lower part of the plain, of which they continually increase the extent by the deposits they form at their mouth. Their banks, which are exceedingly fertile, and are susceptible of irrigation, are yet not the best cultivated part of this beautiful country; they are uninhabitable from the bad quality of the air.

This change effected by water has produced two consequences. In the first place it has formed a vast number of gorges and valleys, which have parcelled out and divided the ancient soil. Some of these valleys are susceptible of cultivation; others still are infertile, owing to their being covered by the floods of each succeeding year with a new deposit of sand, gravel, and different dilapidations of the upper ground. Almost all of them are increased by very lofty escarpments resembling walls; some of them, having acquired a degree of slope, are covered with trees which add to their solidity; none however have inclination sufficient to sustain their load on a base proportionate to the height. Such parts of the ancient plain as have not been affected by the torrents, remain above these valleys and form flats, the elevation of which is uniformly the same, the dimensions various; constantly are they intersected by the ravines I have described.

Some

Some of these flats, perfectly insulated, resemble those calcareous mountains with flat tops which are frequently found in plains, the strata in which corresponded with those of the rest in their vicinity. Nature might, by a violent motion of its waves in the body of waters which form the sea, have anciently effected the same operation on calcareous masses, then much softer than what they are at present, as now before our eyes on the sandy plains of Calabria.

This part of Calabria of which I have afforded a slight sketch is by much the richest, not only from the extreme fertility of its soil, but from the great variety of its productions *. It is likewise the most peopled. An immense number of cities, towns, and villages are spread over its surface: many of them were situated on the slopes at the foot of the great chain, some on those flat elevations which the torrents had respected, and which I have before described; others again on small inclined plains, which have a view of the sea at considerable distance. There are but two maritime towns, Palmi and Bay-nara. The inhabitants generally selected elevated situations, in order to have the advantage of a more healthy, a more pleasant situation, and a more extended prospect. Many of these towns, however, that they might not be too far from the water which flowed into the vallies, were established near the escarpment on the brink of the ravines. This situation was the cause of the singular circumstance which accompanied their ruin.

The mass of the branch of the Appennines, which, as I have noticed, extend at a right angle and form a promontory terminated by Capes Zambrone and Vaticano, as well as its base is granite, but not always naked. It is entirely bare on the escarpments which line the coast between Capes Zambrone and Vaticano; there it is in enormous masses, in which I have never been able to discover either strata or symmetrical order. This granite is exceedingly hard; its granite and component parts are the same as those of the mountains which occupy the bottom of the plain. On them are visible large parallelopipedal stairs, produced by a confused crystallization occasioned by some sort of precipitation †.

This promontory, which I shall call Tropæa, on account of the town built below it between the two capes, draws back from its base towards its summit, and presents four small plains prolonged from one cape to the other in terraces, like the seats of an amphitheatre, and separated by steep slopes. Here you distinguish the gradation of the matter of which the body of the mountain is composed. Solid granite forms the first ter-

* It is impossible to form an adequate idea of the astonishing fertility of Calabria, particularly of that part called *The Plain*. The fields, covered with olive-trees of larger growth than any seen elsewhere, are yet productive of grain. Vines load with their branches the trees on which they climb, yet lessen not their crops. The country, from the immense number of trees with which it is covered, resembles a vast forest, and yet produces grain sufficient for its consumption. All things grow there: and nature seems to anticipate the wishes of the husbandman. There is never a sufficiency of hands to gather the whole of the olives which finally fall and rot at the bottom of the trees which bore them, in the months of February and March. Crouds of foreigners, principally Sicilians, come there to help to gather them, and share the profits with the grower. Oil is their chief article of exportation, of which it may truly be said a river streams annually from Calabria. In other parts the principal production is silk, of which a great quantity is made there. In every quarter their wines are good and plenteous. The people, in short, would be the happiest on earth if . . . but it forms no part of my plan to criticise either the government or the individuals who hold great possessions in Calabria.

† This granite is worked, it serves to make steps for stairs, cisterns, and other similar works. I believe that a part of the columns of granite which are seen at Naples and various towns of Sicily, and which are termed oriental granite, notwithstanding they are not red, were taken from these rocks. On examining them, I found in an escarpment on the sea-shore below the village of Paryhilia an ancient quarry, in which are a number of large handsome columns already cut, others begun, and fragments of a number broken in the operation of cutting them.

race * ; above it is a great thickness of decomposed granite, the grains of which have lost their adherence, and fall asunder with the slightest shock. In this species of rotten rock the waters have opened deep ravines, particularly in Cape Zimbrone, in which they have made frightful cuts through the whole depth of the mountain ; the sides of which however, although steep, have yet a trifle of inclination, being destitute of a solid crust at top to keep the earth together and prevent its giving way. Upon the granite in a state of decomposition is a layer of fine quartzzy white sand, several hundred feet in thickness, in which I found a number of marine bodies, particularly a quantity of superb *echinometres*. Finally, the loftiest part of this mountain, that which forms its summit, is a white calcareous stone in horizontal beds. This flattened summit is the single, calcareous, insulated mountain called *Poro*, on which are the ruins of an ancient castle : it forms a sort of unequal plain, which is prolonged as far as the great chain passing below Monte Leone. But this lofty flat does not partake of the fertility of the plains or slopes which it commands.

The town of Tropea, on the sea-shore towards the base of the promontory, is situated on a rock of granite projecting a little into the sea, which it commands. The exterior part of this granite is coated with a sandy calcareous rock, feebly concreted and full of marine bodies. A similar calcareous concretion adheres to the granite in some other parts of the coast.

The side of this mountain towards the south, in that part adjoining which *Nicotera* is situated, exposes a naked mass of large grained granite of a superb quality, the blocks of which are very large, and fit for the most beautiful works. In the upper part the granite is decomposed, but is less friable than that of the neighbourhood of Tropea. It is crossed by veins of micaceous felspar ; one part of which resembles the *petunze de Saint Yriè* in the Limousin, and the other changes into clay.

As you examine this side of the mountain towards *Mileto* and *Vallelunga* ; the solid granite appears to bury itself in the earth so as to leave only that part exposed which is in a state of decomposition, a quartzzy sand, and white micaceous clay, rather unctuous and ductile, which possibly may also be the result of a decomposition of felspar. These matters form the slopes, leaning against the mountain, which the waters easily penetrate, opening for themselves profound ravines and valleys. The town of Mileto was built on a slope of this description.

On the opposite side of this mountain, that is to say, towards its top on the northern side from the river *Angitola* to Cape Zimbrone, the mass appears to be a mixture of granite

* In midst of the fertile plain which forms the first terrace of the mountain of Tropea is the little borough of *Parybelia*, remarkable on account of the industry of its inhabitants, whose character affords a perfect contrast with that of other Calabrians. They are all of them addicted to foreign commerce. They set off in the spring, and spread themselves over Lombardy, France, Spain, and Germany. They traffic not in the productions of their country, which furnishes but few objects of exportation, but in merchandize of easy transport, such as essences, silks, cotton counterpanes of exquisite workmanship, &c. &c. which they purchase in other parts of Calabria ; and bring back in return some objects of luxury, which they afterwards diffuse through the province. The village is entirely deserted by the men during the summer. The harvest is gathered by the women and old men, and in the autumn they return with their gains to sow their lands. Almost all of them speak French ; their conduct is milder, and their manner less savage than those of their neighbours. They enjoy those little comforts of life which are unknown to their fellow-countrymen. Among them it is remarkable that, although the women never travel, they yet acquire a degree of polish from the excursions of the men to foreign countries. The men are above the common size, the women pretty, and very fair complexioned. Some of them have blue eyes. The beauty of the women of this village is cited throughout the neighbourhood. Another circumstance, as singular as the preceding is, that the example of *Parybelia* has no effect on the town of *Tropea*, distant from it no more than half a league ; the whole of the industrious habits of Calabria being confined to that village.

and foliated rock, in druses, and of *roche de corne*, in which prevails blackish micaceous rock, containing an immense quantity of garnets confusedly crystallized, and sometimes blended with pyrites *. These garnets by trituration have formed a most beautiful reddish sand, met with on the shores of the sea, and which is almost exclusively formed of these fragments. In the upper part of the mountain, above the rocks which I have just described, there are micaceous, calcareous stones, and lastly, calcareous stones formed from shells.

The town of Pizzo, at the back of these black, schistous, and granitic mountains, is built on a rock which projects into the sea, and is enveloped exteriorly by an agglutination of calcareous and quartzey sand, mixed with marine bodies : among others I met with some very beautiful *echinites*. This sort of concretion forming a mass of but little solidity, is nearly similar to that of *Tropea* ; it adheres to other schistous rocks of the same mountain. It covers itself by the concurrence of humidity with a kind of blackish crust or moss, which deceived the eye of Sir William Hamilton, who mistook it for volcanic *stalaëtitis* or *tophus*. I can safely affirm, from the most studious examination and most diligent research, that in all this part of Calabria there is not the slightest vestige of any productions of fire.

To pursue our examination of the mountains which inclose the plain. It remains for me to determine the nature of the mountainous mass, the limits of which is opposite to Messina, and which bounds the coast from *Pizzo* to *Bagnara*, following the roundings of the promontory, which by its contraction forms the *Faro*, and opposite to which, on the north-western side, the town of *Scylla* is built. The mass or kernel is here still granite, sheathed with foliating and micaceous rock, surmounted in some spots by calcareous and very tender sandy stones.

Micaceous and argillaceous schist predominate in the mountains which environ the rich fields of *Reggio* †, which stretch to *Cape Spartivento*. These schists are crossed by ruins of quartz and metal. An attempt there was made to work a lead mine, which was argentiferous, but the plan was afterwards abandoned.

The opposite side of the *Appennines*, that is to say, the part which fronts the east, presents a less bare, a less arid aspect than the west. The inclinations are not so abrupt, and the tops are more covered with wood. The mountains appear of slighter elevation on account of the neighbourhood of mountains of a secondary rank, and hills which extend to the sea, to which the centre of the chain is much nearer than on the opposite side ‡. This side presents a succession of varied sites, and most charming and picturesque

* This foliated and micaceous rock containing garnets, proves that its constituent particles were petrified simultaneously, and precipitated at the same instant from the fluid which held them in solution. In some the bottom of the stone resembles a paste of the nature of garnets which envelopes the mica ; in others, the garnet possesses its particular crystallized form, and is buried in the mica by which it is surrounded.

† *Reggio*, at the extremity of Calabria, is most delightfully situated. The mountains which surround it are covered with shrubs used in France for the ornament of gardens, and which, almost continually in bloom, have a most charming effect. Such are the rose laurels, the *genista odorifera*, &c. The plains, the vallies are surprisngly fertile, a faculty they owe to the abundance of water with which they are nourished. In no part can you dig two or three feet in the sands of the river without meeting with soft water. This water descends from the mountains, filters through the soil, and thus keeps up a freshness and humidity which renders vegetation in such a climate abundant. Numerous clumps of *agrumi* adorn the fields of *Reggio*, affording delightful walks, and furnishing from their fruit, and the essences extracted from them, a considerable commerce. In Italy, the word *agrumi* is used as a generic term to express collectively all trees of the species of orange, lemon, citron, bergamot &c. &c.

‡ One is tempted to imagine that in ancient times the motion of the sea from east to west was more considerable and continual than the reverse, since on one side of the chain it has accumulated at the foot of the mountains a great quantity of sand and detritation from the loftier summits, whence what I have described as the *Plain* was formed ; whereas on the eastern side it still continues to wash the foot of the hills without an accumulation of any sediment whatever.

landscapes. The fields are astonishingly fertile ; there are but few plains, but the valleys are delightful ; the hills are covered with mulberry and fruit trees, while olives, less abundant than on the western side, leave to balance their deficiency a verdure much more lively, with superior charms. The centre or kernel of the secondary mountains and hills is solid ; schist and calcareous stone abound in them, and they are veined with metal.

The part of the chain of the Appennines which runs along the isthmus, or contraction made by the gulphs of St. Euphemia and Squillaci, is likewise composed of granite, foliating rock, and schist, covered in some parts by calcareous stone ; it is only beyond *Nicastro* and *Catanzaro* that all these substances are entirely enveloped with the same calcareous stone, which is substituted for them throughout the whole of the upper part of this chain, until you come to the lava and ejections from Vesuvius, and the volcanic productions of the Campagna di Roma and Tuscany, where you see them again forced into view, from considerable depth, by the action of volcanic fire.

From this general examination results, that almost in every part Calabria has granite for its base ; that the focus * of the earthquake was beneath this base ; or at least that the momentum which occasioned these violent oscillations of the surface, acted beneath these solid masses ; that there is not the vestige of a volcano in any part of this province that I could find ; no matter which had undergone any change from the action of subterraneous fires, neither in the mountains, nor among the stones in the beds of the torrents ; that throughout this province neither lava, *tophus*, nor scorix of any description is to be found. In the interior of the plain I saw no more than two springs of cold hepatic water ; but near St. Euphemia, beyond the isthmus, there is a plentiful spring of hot sulphureous water : neither of these, however, can I ascribe to fire, since the spontaneous decomposition of pyrites is of itself sufficient to account for their production. I lay particular stress on this assumption, as it tends to invalidate the opinion of such as imagine a subterraneous fire to exist below this province : did it exist, it would shew itself less equivocally. Neither in the plain, nor in the mountains by which it is surrounded, or at least those which form the square, are there either mines, sulphureous matter, or bitumen, notwithstanding the assertions of historians. In almost the whole of this boundary the granite is visible, and the soil is composed of nothing but clay, sand, and pebbles.

Notwithstanding there was an almost uninterrupted succession of earthquakes from the 5th February to the following month of August, three distinct epochs may be assigned them, as far as they regard the places under which they acted with greatest violence, and their consequences. The first comprises the shocks from the 5th to the 7th February exclusive ; the second that of the 7th February, at one in the afternoon, and all those by which that was succeeded up to the 28th March ; and, lastly, all posterior to those.

The shock so injurious to the plain of Calabria, that which buried more than twenty thousand inhabitants beneath the ruins of their towns, happened on the 5th of February, at half an hour after noon. It lasted but two minutes, so short a space of time did it require to overturn every thing, and spread a general destruction. I cannot give a better description of its effect than by supposing a number of cubes of sand, moistened and fashioned by the hand, being placed at short distances from each other on a table ; then by striking

* I make use of the words *focus* and CENTRE OF EXPLOSION, not because I imagine the primitive cause of the earthquakes to have existed below Calabria, but merely to assist me in explaining the effects, until I deduce from the phenomena themselves the cause of the agitation of the soil of this unfortunate province.

the bottom of the table repeatedly, and violently shaking it in an horizontal line by one of its corners, an idea may be formed of the violent and various motion by which the earth was then agitated. At the same instant were experienced sudden leaps, undulations in every direction, oscillations, and violent whirlings. No building could resist this complication of motion. The towns, and all the houses dispersed over the country, were levelled in an instant. The foundations appeared to be disgorged by the earth which contained them. Stones were ground and triturated with violence against each other, and the mortar in which they were pounded was reduced itself to dust. This earthquake, the most violent of any that ever was known, occurred without the prelude of any slighter shocks, without any notice whatever, happening as sudden as the explosion of a mine. Some however pretend that a muffled interior noise was heard almost at the same instant. But who can place reliance on the account of those exposed to the rigour of such a shocking calamity? Terror, desire of safety, these were the first sensations of such as were in houses. Again in an instant, and the crash of falling buildings, and the dust raised by their ruin, would hinder them from all seeing or hearing whatsoever, nor even leave them power of reflection. To save themselves was a mere mechanical movement of such as escaped; the rest did not recover to a sense of their misfortune before the shock had ceased. I shall not attempt to picture the horror, silence, and despair which succeeded this terrible catastrophe. The first emotion among the survivors would be joy to find themselves alive; the second desolation. Let us turn from this scene of horror, and leave to others the detail of individual calamity, and particular circumstances, whilst we confine ourselves to physical effects.

The most violent upward shocks were felt in the territories of *Opido* and *Santa Cristina*. There also took place the most violent convulsions; which circumstance has caused the idea that these towns were placed over the focus of explosion. But unlike others I shall not say that the effect of the earthquakes, the ruin they occasioned, were in inverse ratio to their distance from the centre, or that the greater the distance thence the less the devastation. Supposing this, the towns of *Sederno*, *Grateria*, and *Girace*, which are not farther from *Opido* or *Santa Cristina* than *Rosarno* or *Polistena*, would have experienced injury alike; and the villages *Mamola*, *Agnano*, and *Canolo*, which are much nearer, would have been levelled with the ground. But all these places were on eminences on the other side of the chain, and notwithstanding they suffered greatly from the shock of the 5th February, they were not either overturned or ruined; their fate can be in no respect compared with that of the towns of the plain. I shall maintain with more reason, that all within the compass of the mountains before described was entirely destroyed; and that the buildings on solid foundations above the plain, or on the ridges of the mountains which surround it, were far from being equally mal-treated.

The general effect of the earthquake on the sandy, argillaceous soil of the plain of Calabria, which, as I have described, is destitute of consistence, was that of augmenting its density by diminishing its volume, that is to say, of heaping it; of establishing slopes wherever there were escarpments or rapid declivities; of disconnecting all those masses which either had not sufficient bases for their bulks, or which were only supported by lateral adherence; and of filling the interior cavities. Hence it follows that in almost the whole length of the chain, the soil which adhered to the granite of the bases of the mountains *Caulone*, *Esepe*, *Sagra*, and *Asframonte*, slid over the solid nut, the inclination of which is steep, and descended somewhat lower, leaving, almost uninterruptedly, from St. George to beyond St. Christina, (taking the base, a distance of from nine to ten miles,) a chasm between the solid nut and the sandy soil. Many lands slipping thus
were

were carried to a distance from their former position, covering others entirely*. Whole fields sunk considerably below their former level, without others adjoining them undergoing the same change, thus forming a species of basin, as was the case above *Casal Nuovo*; other fields assumed an inclination. Chasms and fissures traversed the flats and slopes in every direction, but generally parallel to the course of the gorges in their neighbourhood. In the immense olive grounds between Polistena and Sinopolo these fissures are visible at every step. But on the brink of escarpments was it generally that the greatest damage and ruin occurred. Considerable portions of land, covered with vineyards and olives, separated themselves upon losing their lateral adhesion, and fell in single masses to the bottom of the valleys, describing arcs of a circle, the radius of which was the height of the escarpment from its base, in the same manner as a book standing on its edge which falls flat. In such cases the upper part of the soil upon which the trees grew were thrown to a distance from their former site, and remained in a vertical posture. I have seen trees which continued to push out leaves, and which did not even appear to have suffered, notwithstanding they had remained for a year in a position so contrary to that perpendicularity they constantly affect. In others, enormous masses losing also their lateral adhesion, fell on inferior slopes, and descended thence into the valley; to the impulse received from their fall was superadded the further movement given to their course by other lands which pressed upon their rear, thus impelling them to a considerable distance; still they preserved their form and position, and after affording the spectacle of a moving mountain, established themselves finally in the valleys. It is here essential to remark, that the sandy soil of the plain, not forming a mass of connected particles, was a bad propagator of motion, so that the lower part would receive more impulse than what it would transmit to the surface. This is the cause why the bottom in most cases gave way first, and the base running away, almost similar to a fluid, from the upper part to which it served as a support, this latter sunk down, detached in very large masses, from the lands to which it was formerly connected. The surface of the soil being strongly bound by the interwoven roots of trees, and the thickness and tenacity of the bed of vegetable and argillaceous earth, it is nowise singular that many of these lands should be preserved almost entire, notwithstanding the falls, violent shocks, and long courses they made. But let us follow the effects of the shock of the 5th of February.

Where the upper part of the escarpment gave way first, or where the surface of the earth separated into fragments, which broke away as the base crumbled from beneath, disorder was at its height; trees half interred presented indifferently their roots or branches; and where in such cases the wrecks of houses were mingled with those of the mountain, no semblance remained of what had existed before, and the whole formed a picture of chaos.

At times it happened, that a surface, which by its fall and the inclination of the declivity formed below it, received a strong impulse of projection, provided it was opposed in its course by any small intervening hills, it covered them, nor stopt till it had past beyond. Where a similar surface encountered the opposite declivity, it struck

* Accidents of this kind have given rise to singular disputes. It has been requisite to decide to whom the lands belonged which buried those of others. The earthquakes of Calabria have caused the greatest revolutions in the fortunes of individuals. Many of those whose whole property consisted of moveables, debts, ready money, &c. have been reduced to beggary, however great their former wealth; others have acceded to inheritances who never could have nourished such hopes, and which would not have been theirs but for the entire destruction of the most numerous families. Almost all the rich were losers, and gainers almost all the poor. The latter over and above their plunder charged what they pleased for their labour, which could not be dispensed with by those who required huts to dwell in, or wanted assistance to redeem what was covered by the ruins, and their charge was in consequence exorbitant.

against it with violence, and raised itself up a little, and formed a species of cradle. When the opposite sides of a valley fell away at the same time, their wrecks met together and their shock raised little hills in the center of the space they covered. The most common effect, that, of which a number of examples is seen in the territories of Oppido and Saint Christina, and on the banks of deep vallies or gorges, in which run the rivers *Maidi*, *Birbo*, and *Tricucio*, is, where the inferior base having given way, the upper grounds have fallen perpendicularly and successively in great trenches, or parallel bands, each assuming its respective position, so as to resemble the benches of an amphitheatre; the lowest bench or terrace is sometimes four hundred feet below its first position. This among others is the case of a vineyard situated on the border of the river *Tricucio*, near a new formed lake, it is in this manner divided into four parts, which hang in terraces one above the other; the lowest part of the terrace fell from a height of four hundred feet.

The trees and vines that were growing on lands removed in mass received no injury; even men upon them, some on trees, others tilling the land, were thus transported in a curious manner for several miles, without suffering any harm; many such examples have been quoted to me which are authenticated in different relations.

The consequences of the crumbling to pieces of these elevations have been, a straitening of the valleys, or the entire covering of them in various places where opposite banks have met, so even as to obstruct the current of water and form a great number of lakes; the filling up of gorges and rendering even the surface of intersected lands; transportation of the inheritances of certain individuals on to the possessions of others, an interruption of communication, and a new face afforded to the whole country.

The other phenomena produced by the first shock, and originating therein were, a suspension of the course of rivers, the instantaneous drying up of some, and their after increase. The explanation of these facts is easily given, they were owing to the sudden percussions upwards and downwards which the earth then experienced; and to the center of the plain being raised and the slope of the currents of the river being increased which caused them to run with greater rapidity. The upper waters retained by a kind of dam were kept in stagnation; but, the cause removed, a level was re-established, and the streams somewhat augmented in volume ran muddy. In many places water spouted from the earth to the height of several feet, carrying with it mud and sand. All springs were more abundant. Some sulphureous and hepatic waters made their appearance for some days and afterwards disappeared. These phenomena are all the consequence of the accumulation. All springs have an interior reservoir; many subterranean cavities are full of stagnant water which acquire a taste and smell of hepar, either owing to putrefaction, or the decomposition of pyrites; if by the contraction of the soil or the fall of upper bodies the capacity of the reservoirs become less, they spring forward with a force proportionate to the lateral compression, and bear away with them the bodies with which they are mingled. This increase of springs is a further cause of the increased volume of rivers. Nobody has been able to tell me precisely whether the hepatic waters which ran at the time, were cold or hot. Those which I have seen and which mix now with the waters of *Vacari*, a river which runs by *Poliglina*, and with those of the river *Tricuccio* near *Oppido*, are cold. The phenomena of water spouting is peculiar to the first shock; on the other shocks taking place it did not occur on account of the soil having acquired already the greatest density and constriction of which it was capable.

Moreover in the whole of the country I travelled through, notwithstanding the most diligent research, I found no indications or symptoms of a disengagement nor subterraneous currents of vapour, or any vestiges of either fire or flame. Every circumstance

of this description related in many accounts has been contradicted by the testimony of the very persons referred to by the authors. It is but an easy task to make a peasant, still full of terror, and who has no interest in the circumstances respecting which he is questioned, reply as might be wished. It is easy enough to make them answer yes to whatever they are asked. They are uniformly but half informed men; who have added to their relations the most singular and most contradictory circumstances, from their desire to attribute to the late earthquakes of Calabria all the phenomena of which they have an idea, from knowing what had occurred on similar occasions. Moreover the major part have had some petty system to support, and have been desirous of arranging circumstances so as to make them square with what they had traced the outlines of before.

Let us take a rapid view of the various towns destroyed by the second shock, and examine the chief circumstances attendant on their destruction.

Rofarno a small borough on a sandy hill, a short distance from the river *Metramo*, was overturned. The prince's castle, the churches, and houses exhibit nothing but heaps of ruins; some low houses excepted, all of which are violently shook, and some bare walls which stand by themselves, the rest is a heap of ruins.

The course of the river *Metramo* was for an instant suspended near the bridge of *Rofarno*. but shortly after its waters flowed in greater abundance than before and were disturbed. It is even pretended that it was entirely dry * for the space of some minutes.

Polistena, a tolerably large, rich and populous town, was built on two sandy hills divided by a river which had a somewhat deep bed. This town is absolutely levelled†, not a single house remained, not a single piece of wall †. Many houses were precipitated into the river, the earth of the banks of which had given way. The thick and very solid walls of the Dominican monastery are fallen in large blocks. The hill on the right,

* The plain on the right side of *Metramo* near the bridge is condemned to sterility from the inundation of a torrent which leaves on it every year a fresh coat of sand and mud, making it a marsh, the atmosphere about which is infected. A trifling expence is all that is requisite to form a bed for this torrent, and restrain its course. The government however disdains to trouble itself on such paltry affairs of administration.

† I had seen Reggio and Messina, and mourned the fate of those two towns; I saw not in them a single habitable house, not one but would require rebuilding from its base, yet the skeletons of these two towns remained, the greater part of the walls standing by themselves. What these towns formerly were is visible. Messina still at a distance presents an imperfect image of its ancient splendour. Every inhabitant might distinguish either his house or the ground on which it stood. I had seen *Tropea* and *Nicotera*, in which few houses remained but had received great damage, and in which many were wholly fallen in ruins. I framed no idea of greater misfortunes than those which had befallen these towns; but when I saw the ruins of *Polistena*, the first town of the Plain which presented itself, when I surveyed heaps of stones which were destitute of form, and gave no conception of its having ever been a town; when I beheld that nothing had escaped destruction but all was level with the dust; I experienced such a mixed sensation of terror, compassion, and horror, as for sometime deprived me of my faculties. This spectacle however was but the prelude to still more wretched scenes on the rest of my excursion.

The impression made upon me by the sight of Messina was totally different. I was less struck by its ruins than the solitude and silence which reigned within its walls. One is affected by a melancholy terror, a mournful sadness, in traversing a large city and visiting its different quarters, to meet with no soul living to hear no human voice, no sound but the quivering of doors or shutters suspended to fragments of walls, and acted upon by the wind. The mind is then rather overcome by the weight of its feelings than terrified; the catastrophe seems directed against the human species, and the ruins which are seen appear to be no other than the effect of depopulation. Such would be the picture of a town where a pestilence had raged.

The whole population of Messina took refuge in barracks of wood without the city.

† This town buried one half of its inhabitants beneath its ruins. Such as survived this fearful catastrophe dwell in barracks placed on a flat which overlooks the ancient town and on which it is in contemplation that the new town shall be built.

near the Capuchin convent, is considerably sunk. There are a number of fissures in the soil and its depression continues to the foot of the mountain a league from the town. In the whole of the neighbourhood of the town are numerous fissures.

Saint Georges, a small town a league and a half distant from Polistena suffered scarcely at all from the shock of the 5th February, on account of its being built on an eminence, situated on a rock, adhering to the great chain of the Appennines. It afterwards received considerable damage from the earthquakes of 7th February and 28th of March.

Cinco Frondi, a pretty borough, half a league distant from Polistena, in a very fertile plain, was entirely ruined. An ancient tower of Moorish work, square, situated in the middle of the town, and large enough to serve as a castle and dwelling for the lord of the manor, was exceedingly solid as much on account of the great thickness of its walls, as the quality of its cement, which had bound the works together in such a manner as to make the whole as firm as a rock; it was overturned, and in its fall broke into a number of large blocks of astonishing volume and hardness. One of these blocks contains an entire staircase. Here it seems as if the earth had disgorged from its bowels the very foundations of the different buildings.

In going from *Polistena* to *Casal Nuovo*, two leagues distance you pass the Vaccari, a river which has dug its bed in a soil entirely of sand; there is a source of cold sulphureous water, which empties itself into the river, a short distance from *Polistena*; this source was very abundant on the 5th of February and following days; the smell of it also was very strong, but by degrees it resumed its natural state. In the country through which this river flows, and on its banks, several springs spouted up water on the first shock.

Casal Nuovo, a pretty town, situated in a pleasant plain at the foot of the mountain, with wide and straight streets, and low houses*, was entirely levelled, so as that one stone remained not upon another. This town was built after the earthquakes of 1638, which devastated Calabria. The utmost precautions were used to prevent a ruin similar to that we witnessed. But notwithstanding its streets were very wide, and its houses very low, nearly half the population was crushed beneath the ruins. The Marchioness of *Gerace*, the lady of the manor, and all about her were the victims of this shock.

The whole of the soil of the plain which surrounds *Casal Nuovo* is sunk. This depression is particularly apparent above the borough at the foot of the mountains. All the sloping lands which leaned against this mountain have slid lower down; leaving between the moving ground, and the solid, fissures several feet in width which extend from three to four miles. Certain portions of those lands thus slipping down descended into the plains and overwhelmed others at considerable distance from their former site.

In going from *Casal Nuovo* to *Santa Christina*, within a space of six leagues one traverses a country intersected in a most extraordinary manner, by gorges, ravines, and deep vallies; a country, which has consequently been the theatre of great revolutions. Not a step can you make in this part without discerning either fissures in the soil or places whence the soil has fallen away.

Terra Nova, this was a small town situated on an elevated flat, on three sides of which were deep gorges, which gave it the appearance of being placed on a high mountain. But this elevated flat was at the extremity of a plain which extended to the foot of the

* The appearance of *Casal Nuovo* was delightful when seen from a distance. At the corner of every house a tree was planted and a vine which gave shade; so that the streets had the appearance of the covered allies of a garden.

mountain and is of extreme fertility *. This town enjoyed an excellent air, a beautiful prospect and the advantage of excellent water. The position which secured it these advantages occasioned it to experience a destruction, reflection on which alone must make one shudder. A part of the soil gave way, and in its course to the middle of the river *Maro* carried with it the houses upon it. Their ruins, stones, and woodwork mingled with the sand which formed the body of the mountain, cover a considerable part of the valley commanded from the town. On the opposite side the mountain by a perpendicular fissure from top to bottom became divided, and one part, separated from the other, fell in one block on its side in the same manner as a book opened in the middle which has one part upright on its back while the other falls to the table. That which was the upper part, on which were houses and trees, remains in a vertical position; of the houses it will easily be conjectured there is not a vestige remaining; but the trees have received little injury. At the instant of the formation of this fissure, and the separation of the mountain all the houses placed immediately above, were perpendicularly precipitated down more than three hundred feet, and covered the bottom of this chasm with their ruins. Nevertheless the whole of the inhabitants did not perish, the difference of their gravitation caused the materials to reach the ground before the men, so that many were saved from being buried or crushed to death in the ruins. Some fell directly on their feet, and immediately walked firmly over the heaped wreck, others were interred up to their thighs or breast, and were released with a little assistance. A third part of the town in crumbling to pieces filled with its ruins a little valley which was nearly in the center, and in which were a fountain and some gardens. Never did any country experience a greater overthrow than that on which this unfortunate town was situated; never was there seen destruction accompanied by more singular and varied circumstances. The site of not a single house can be recognized; the surface is wholly changed, nor by what remains is there a possibility of divining what formerly this town had been. The soil in every part gave way, the whole was overthrown. That which was lofty is abased, that which was low appears, from the diminution of the height of its contiguous prominences, to have been elevated. For there has been no actual elevation as some pretend. A stone well in the convent of the Augustins appears to have been driven out of the earth, and at present resembles a small tower eight or nine feet in height a little inclined. This effect was produced by the consolidation and consequent sinking of the sandy soil in which the well was dug.

The ruins of the town, with those of the opposite hill, have stopped the current of the small river *Soli* on one side, as well as that of a plenteous spring which emptied itself into the bottom of the opposite gorge, and have thus formed two lakes, whose stagnant waters are the more impetuous from their being the receptacle of dead bodies and wrecks of all descriptions †.

In all the environs on the edges of the valleys there has been considerable shrinkings. The whole plain above the town is intersected by numerous crevices and fissures. A

* In no part have I ever beheld such large olive trees; they resemble timber trees, and planted in quincunx, they form most superb woods as dark and as shady as a forest of oaks. The ground is cleansed and stamped round the foot of each tree in order to form a circular hollow ring into which the olives fall; the quantity is so considerable, that they are actually broomed into heaps.

† Unless art or nature dry up these lakes they will complete by their pestiferous exhalations the destruction of the small population which has survived the concomitance of so many causes of mortality. The atmosphere at present is so loaded, so much infected, so moist, that in the month of February there were as many insects and flies in the air as are wont to be in summer on the surface of stagnant pools.

considerable distance must be travelled over, ere a proper site can be found for the new town or rather hamlet, which the small number of the remaining inhabitants will have to establish*.

A large plantation of olive trees belonging to the Celestin monks on a level with the ground suffered materially. One part of it was overturned in the gorge in which the river *Soli* flows, and the trees, some of which were not rooted from the earth, have taken most singular positions, where they continue growing. Another part sunk some fathoms down; and all the remainder is threatened with ruin from the number of fissures and cracks which intersect it; and for the space of a mile, not a foot of ground is there remaining which can be regarded as firm and solid†.

The village of *Moluquello* or* *Moloquillo* was situated opposite to *Terra Nova* and on the same level, on a small platform a mile in length and two hundred paces broad, compressed between the rivers *Soli* and *Maro* which ran in deep vallies at their feet. One part of the village fell towards the right, another towards the left, and of the ground on which it was situated no more remains than a ridge so narrow that you cannot walk upon.

Radicina, a pretty small town in the plain at some distance from the gorges, was entirely levelled, with the exception of a small square house of one story in the center of the town, which kept firm, and indeed has hardly suffered at all without my being able to assign a reason.

I shall say nothing of all the small villages the ruins of which lay scattered about the country, as they present nothing interesting.

Oppido, an episcopal see and pretty considerable town, was placed on the summit of an insulated mountain, or rather on an elevated flat level with the neighbouring *Plain*, of which it seems formerly to have made a part, but from which it had been entirely disjoined by the torrents, which had formed all around it gorges of an extraordinary depth. Access to the town was exceedingly difficult on account of the rapid acclivity and escarpments about it. Notwithstanding this, trees and shrubs had got hold on the sides and enveloped the mountain with a girth of wood, the interwoven roots of which gave a kind of solidity to the mass, which of itself had none: for it is composed alone of sand, clay, and marine fragments, altogether similar to the compound of the opposite hills.

The town was entirely levelled, not a single piece of wall remaining erect. A part of the extremity of the flat on which a strong castle was situated, a kind of citadel, with four bastions, fell away, and drew with it two of the bastions into the gorge below. This is the only subtraction the mountain experienced; the rest remained entire, notwith-

* The ancient population of *Terra Nova* was two thousand souls. It is at present reduced to less than four hundred; rather more than fourteen hundred were buried in the ruins or crushed to death, and the rest have been taken off by putrid fevers. This small number of unfortunate people have built themselves barracks on a plain half a mile below the site of the former town; the damp and unsolid nature of the ground in this part will not allow of their ever building houses here.

† I lodged at *Terra Nova* in the barrack belonging to the Celestin monks, one only of all of whom escaped; it is in the midst of the plantation of olive trees. I had noticed the evening before how very deficient of firmness was the ground; my imagination was full of all I had seen; I was picturing to myself the sensations of the inhabitants of this town at the instant of the shock; when I felt my bed moved by a pretty strong earthquake. I got up precipitately and with some inquietude, but on perceiving all was silent I conjectured that this shock though very strong was nothing comparable to those which had before been felt at the instant of the various catastrophes, seeing it occasioned not the slightest alarm to those who were at rest in the self-same barrack. I again retired to my bed, but it will readily be conceived not to rest during the remainder of the night.

standing its escarpments, in all likelihood sustained by the strong girth afforded by the roots of the numerous trees and shrubs by which it was encircled*.

If the soil of Oppido resisted in some measure the violence of the shocks, this was not the case with the opposite banks; the crumbling away of the earth was there immense. The fall of the ground, and considerable portions of the hill, filled the valleys and formed lakes, by which the town is now surrounded. These lakes which surround the mountain will, by degrees, be filled by the accumulation of sand brought by the torrents and the wreck of the higher grounds†. Already is there one which has been filled in this manner.

It is not, however, in the immediate neighbourhood of the town that the greatest devastation has been experienced; but, a mile or two miles from it, in the deep vallies formed by the rivers *Tricucio*, *Birbo*, and *Boscanio*. There all those accidents which I noticed in the beginning of this Dissertation occurred. There sand and clay ran like torrents of lava or as if they were carried away by water. In other places, considerable portions of mountains ran for several miles in their way to the vallies, without falling in pieces, or even changing their shape. Entire fields, covered with vines and olives, were precipitated into the bottoms without changing the horizontal position of their surface; others were somewhat inclined, while others again were placed vertically, &c. &c. The fall of opposite escarpments, and their after rencounter have formed dams of several miles in thickness, stopped the course of streams, and produced great lakes, which the government is employed in attempting to dry. For this purpose it will be necessary that deep canals should be cut the length of three or four miles through the rubbish, which will take up a length of time, and prove extremely expensive; both the labour and expence of which might be saved, if the government but reflected that nature, in a few years, would fill up these lakes, as she has done many others; that an infected atmosphere is much less to be apprehended in such places at distance from habitations, and that the expence could be much better employed in the neighbourhood of Terra Nova, or other parts of Calabria.

Below *Oppido*, at a distance of three miles, was situated the small village of *Castellace*, built on the brink of an escarpment, which gave way, and fell into the valley. The ruins

* Who would imagine that the inhabitants of Oppido after the destruction of their town and the various disasters to which it had been subject, should yet be partial to that unfortunate spot. Government pointed out a site for a new town. It chose a place called *Latuba*, a league distant from the former. The greater part of the inhabitants object to going thither. They consider as a sort of tyranny the attempt to take them away from their former place of abode to oblige them to inhabit a moist and unhealthy plain which contains no materials for building. They say in favour of their insulated flat, that it has proved its solidity by resisting the most violent shocks without flinching in the least; that the stones and wood work of the houses in ruins will serve them to build others; that its air is excellent; that they are nearer to their possessions, and that collectively, these different advantages more than compensate for the inconvenience of having no water on the flat; and assume that being accustomed to fetch it from the bottom of the valleys, use has made this labour of no consideration. A schism has hence arose among the remains of this population, part have complied with the wishes of government and are gone to *Tuba*; while the rest remain on the ruins of Oppido. I was surrounded by them on my going to visit that town. They seemed to have forgot the misfortunes occasioned by the earthquake, their minds being wholly engrossed by the injury which they pretended had been done them. They particularly complained bitterly of being deprived of a mass which had been accustomed to be laid in a hut set apart for the purpose from the commencement of their disasters.

† Before I reached the mountain of Oppido I could not conceive how it was possible to approach it; I was separated from it by the place where a lake had been, which was filled. This basin, full of a fine sand on which the river runs, seems a vast gulph of mud which the eye contemplates with fear, and which is a hundred paces over. My guide informed me we had to pass it in order to reach the old town. I risked a step or two with some apprehension but made confident by the experiment, and finding that what appeared to me a grey and softish mud was firm, I crossed this lake of sand through a depth of water which reached my knee and took a little crooked path, by which I was enabled to climb among the bushes up an escarpment which appeared to me inaccessible.

of some houses which remain on the mountain, are the only indications of its position, or former existence. The village of Cossolitto has experienced nearly a similar fate.

The town of Santa Cristina, situated almost at the foot of the great mountain *Aspramonte*, on a sharp sandy hill, surrounded by gorges and deep valleys, was circumstanced nearly in the same manner as *Terra nova*, and experienced similar destruction. The houses with part of the hill were precipitated from top to bottom. A number of chinks and fissures intersect it from its summit to its base, so as to give room to apprehend that the remainder will yet give way. The whole surface of the country is changed. The territory of Santa Cristina, cut in a like manner by a number of gorges and valleys accompanied by escarpments, experienced the same fate as that of *Oppido*.

The territories of *Terra nova*, *Oppido*, and Santa Cristina, are those on which the earthquakes occasioned the greatest damage, and produced the most extraordinary results. This has made it conceived that the *focus* of the shocks of the 5th of February was beneath this part of the plain. I shall not deny that the concussion may have been more violent there than elsewhere; but the nature of the soil, and the gorges by which it is intersected, very much contributed to the destruction of the towns, and greatly assisted in occasioning the disorder observed in their neighbourhood.

Following the circuit made by the base of *Aspramonte*, we come to the small town of *Sinopoli*, and the borough of Saint Euphemia, both built at the foot of the mountain, and both destroyed, yet not levelled with the ground.

Bagnara, a pretty considerable town on the coast, built on an eminence, with an escarpment towards the sea, was entirely levelled. The houses were precipitated one upon another in such manner, that with difficulty can it be distinguished it had ever been a town.

Seminara, another town on the coast, was destroyed, but not levelled entirely, like the last.

Palma, a well-peopled trading town, is only a heap of ruins.

Without enlarging the list, what I have said will be sufficient to demonstrate that the singular circumstances attendant on the earthquake were the natural effect of a violent shock on a sandy ground previously opened and torn by torrents. It is furthermore visible that on a space six leagues in length by six in breadth, lying between the river *Mutramo*, the mountains and the sea, not a single edifice remained entire; one may even state that scarcely one stone was left upon another, and that there was not in this whole space a single acre of ground but what had either changed its figure, its position, or undergone material revolution.

While the plain was given up to total destruction, buildings in its neighbourhood, founded on solid bases on eminences, escaped from equal devastation. They felt the shock severely, and many houses were damaged. But if this shock of the 5th of February had been the only one, had it not been followed by those which succeeded it, almost uninterruptedly for six months, none of the upper towns would have been rendered uninhabitable. It seemed as if the power which in every direction had shaken the plain had not been sufficiently strong to raise a greater weight, such as that of the mountains by which it is inclosed. Hence *Nicotera*, *Tropea*, and *Montedoone*, towns built on the mountain of Cape Vaticano, or on its prolongation with the boroughs and villages dependant on them, suffered scarcely at all. Their overthrow was reserved for a more violent exertion of force, such as shook the bodies even of these mountains themselves, on the 18th of March following. The borough of *St. George*, only four miles from *Potistena*, as we have before remarked, but placed on a mountain, was before then but little injured. The boroughs and villages situated on the ridge of the mountain opposite

sites to Messina, and the small town of Scylla itself, were not entirely destroyed: On all these mountains the shocks were less violent, less momentary; the movements were not so quick, so irregular, nor even the upward percussions similar.

Reggio and the neighbouring places were rendered uninhabitable, but not levelled. It was not even the first shock which damaged them the most.

On the opposite side of the Appennines, towards the east, the earthquake of the 5th February was very sensibly felt; all the towns in this quarter suffered either more or less, some planks gave way, steeples and several churches were thrown down, houses were damaged, but very few were wholly overturned. The number of persons who perished was inconsiderable.

Every where, except on the *Plain*, the shock was preceded by some slight oscillations and a subterranean noise, which all agree proceeded from the south-west.

The earthquakes which succeeded the fatal epoch of the 5th of February, although sensibly felt in the plain, occasioned there no further injury. No more houses remained to be thrown down, and the ground was consolidated by assuming slopes; and moreover a greater density occasioned by the shocks. All acclivities had become less by an extension of their bases. The earth therefore was shook in vain in that unhappy country; it took no further part in this dreadful tragedy.

The shock which happened in the night of the 5th of February increased the damage done to Messina, Reggio, and other towns already affected by the first earthquake. It was fatal to the inhabitants of Scylla, owing to the fall of a considerable portion of the mountain into the sea, which raised the waves, and gave them a violent undulation. The billows broke with force upon the strand, and the lower part of the town, where the Prince of Sinopoli, the lord of the manor, accompanied by all his attendants and a great number of inhabitants, had taken refuge; these billows threw themselves forward on the shore, and on retiring drew back with them all that were there*.

The earthquake of the 7th of February, at half past one in the afternoon, was very violent; but it did not exercise its greatest violence in similar places to the former; it seemed as if the focus or centre of explosion had ascended six or seven leagues higher up towards the north, and placed itself beneath the territory of Soriano and Pizzoni. This earthquake effected the destruction of the borough of Soriano, and the dependant villages, of a large Benedictine convent, very solidly constructed, subsequently to the earthquakes of 1659, and of the Chartreux convent, called San Bruno, or Stephano del Bosco; all of them places which had been respected by the first shock. It concluded with overturning *Lauvana*, *Galatro*, *Arena*, and other neighbouring districts. Of *Miletto* it made a heap of ruins, and perfectly laid waste the territory of a circle, the diameter of which might be from two to three leagues.

The territories of *Soriano*, *Arena*, and *Sorotto*, the soil of which was sandy, and intersected by ravines, experienced likewise great mutation of surface from the fall of its eminences, and displacement of its lands. The mixture of sand, clay, and decomposed granite, of which the hills are compounded below the town of Miletto, gave way in several places, and apparently ran like lava.

It is highly worthy of remark, that the earthquake of the 7th of February was felt the most at Messina and Soriano, places very distant from each other; whilst it was mostly

* This circumstance, attendant on the earthquake, which happened on the night of the 5th of February, has been the most variously related, and has occasioned the most comments of any, many fallacies being added to the true account. It is well authenticated that the waves carried away twelve hundred persons, who had taken refuge on the shore, in the number of whom was Count Sinopoli. But that the water was hot, that the bottom of the sea burnt! these are particulars neither true nor likely.

less violent in all the intermediate country, throughout which however a considerable noise was heard.

The 28th of March was another fatal epoch which carried ruin and desolation into countries, the inhabitants of which were already half recovered from their apprehension of danger from earthquakes; for not having received material damage from the first shocks, they had flattered themselves with being without the pale of this terrible scourge. The centre of explosion changed for a third time, and again ascended seven or eight leagues higher towards the north, taking its seat beneath the mountains which occupy the isthmus that unites the upper part of this province to the lower, between the gulphs of Saint Euphemia and Squillaci. The most violent upward shocks, indications of the spot where the strongest efforts were made, were principally below the mountains of *Girafalco*, about the centre of the contraction. On this occasion nature displayed a much greater force than she had done in the preceding shocks; she lifted up and shook the very bodies of the mountains, which cover the whole space where this earthquake exercised its ravages. In consequence the extension of its momentum was to much greater distance. Calabria citra felt its effects, and even received some injury. All the provinces of the kingdom of Naples were sensible of its shock. It ravaged indifferently both sides of the chain; lofty sites or lowly spots were alike subject to its devastation; nothing seemed exempt. By drawing two diagonal lines, one from *Cape Vaticano* to *Cape Colonne*, the other from *Cape Suvero* to *Cape Stillo*, you will within these four points have the extent within which the shock was terrible, and the destruction greatest, and the point of intermission of the two lines will be nearly that of the centre of explosion*.

This earthquake was preceded by a very loud subterraneous noise similar to thunder, which was renewed at every shock. The motions were very complicated; some upwards, as if leaps of the earth; afterwards succeeded violent whirlings, which were terminated by undulations.

It would be useless to give a list of all the towns and boroughs which received considerable injury on this occasion. It will be enough to observe that all the upper part of this province suffered materially, that many towns were either almost wholly overthrown, or rendered uninhabitable. But notwithstanding the violence of the concussions of the 28th of March, the misfortunes suffered by these countries were in nowise comparable to those endured by the plain on the 5th of February. Here there were no towns levelled with their foundations; the ruin of several very badly built, such as *Pizzo*, was prepared by the previous shocks; and nevertheless the chief part of the walls are standing. Moreover the towns of *Nicotera*, *Tropea*, *Monteleone*, *Squillace*, *Nicastro*, *Catanzaro*, *San Severino*, and *Cotrone*, are capable of being rebuilt. Few buildings have been totally ruined, and some are only a little shook. The common people have already entered the lower part of these towns; and as soon as the great houses shall be reduced to one story only above the ground-floor, as ordained by government, and they shall be a little repaired, they will become habitable. It will however require a length of time to free the mind of the inhabitants from the terror excited by the earthquakes, particularly the shock of the 28th of March, before which they felt themselves in some measure secure; and to engage the rich to leave their wooden huts, in order to inhabit stone buildings again. As one is accustomed to judge of all objects by comparison, the fate of Calabria Ultra affects one but little, having witnessed the calamities of the plains, and overgone its ruins.

* I repeat here that I use the expression of the *centre of explosion*, not to indicate the cause, but only to explain the effect.

The different effects of the earthquake of the 5th of February and that of the 28th of March, can only be attributed to the nature of the soils. In the *Plain* the base itself gave way, not a house there was built on a firm foundation. The motion of the convulsions was more irregular, as modified by being communicated through the medium of a soil yielding more or less to the force which convulsed it, and consequently transmitting it unequally. In the mountains, on the contrary, notwithstanding the agitation of the surface was pretty considerable, they were less destructive. The rocks on which the towns were built communicated to them a more regular motion, being better conductors; the soil after each oscillation resumed its position, and the edifices preserved their fixity. So a glass full of water will bear great vibration without a drop being spilt, while it is emptied by the least irregular shake.

The earthquake of the 28th of March increased the disasters of Messina, where it acted with violence; it added new damage to Reggio, and overturned a number of houses in the small town of Santa Agatha de Regio and the neighbouring places. Nevertheless it was but little felt in the *Plain*, which lays between the two extremities of Calabria, where, as I have before observed, the shocks were exceedingly rough. It seemed as if the actuating force passed freely, as in an open canal, under the plain, to strike alternately the two most distant points.

The earth continued convulsed throughout the whole of 1783. I myself even felt several shocks in the months of February and March 1784. But none of these can be compared to the three which form different epochs, nor even to those which immediately succeeded them; neither were they followed by any accidents worthy of mention.

The sea shared little of the convulsion to which the continent was subject in the earthquakes of 1783. The mass of waters experienced no general actuation of flux or oscillation, nor rose above their ordinary level. The waves, which beat against the coast of Scylla, and afterwards covered the point of the Faro of Messina, were raised by a partial cause. The fall of the mountain, which I have before noticed, elevated the water on the spot, which received a new undulating motion, such as constantly follows similar causes. The shore was covered three different times, and every thing upon them was borne away by the reflux of the waves. The undulation extended from the point of Sicily to the other side of *Cape Rosicarmo*, continuing along the coast towards the south, but gradually diminishing its rise from that to which it was swollen at Scylla. This elevation of the waves immediately succeeded the fall of the mountain. If it had been the consequence of a general motion of the sea, if the waves had been acted upon from a similar cause with that experienced at Cadiz, on the occurrence of the earthquake at Lisbon, they would have had a different impulse, and the effect would have been remarked to extend much farther. A violent fluctuation would have been noticed at Messina, provided the sea had partook of the shock to which the earth was subject. The mole, which is even with the water, to which vessels are moored, whose heads project above it, would have been covered, and the vessels wrecked. The same effect would have taken place at *Palma*, which is higher up than Scylla, as well as upon the beach of Tropea; but in no part of this coast did the sea exceed its bounds. What moreover proves that the inundation at Scylla proceeded from the cause ascribed, is the circumstance of the sea not having risen in a small creek behind the shore, on which the waters rose with such violence, owing to its not being in the direction of the undulation.

Notwithstanding I made numerous enquiries, I could not gather from any of the accounts afforded me any indication of the electric phenomena mentioned in different relations, nor of any of the sparks, or disengagement of the electric fluid, to which the naturalists of Naples so positively ascribe the origin of the earthquakes.

The

The state of the atmosphere was not constantly the same pending the disaster. While tempests and rain seemed at Messina to have conspired with the earthquakes to effect its ruin, the interior of Calabria enjoyed fine weather. In the morning of that dreadful day there fell a little rain in the *Plain*; but during the remainder of it the weather was serene. The months of February and March were tolerably fine, and even warm. There were some storms and rain, but none other than are common at that season. The fine weather which reigned after the catastrophe of the 5th of February was even of great advantage to the interior of Calabria; but for that the unfortunate remains of the population, without shelter, or means of procuring any, for a length of time, owing to the want of boards and workmen, would have died of want and the intemperance of the season. On the 28th of March, in the upper part of Calabria, the weather was not bad, nor was the earthquake attended by any storm; there were only some showers. From this remark it follows, that the atmosphere is not so strictly connected with the interior movements of the earth as has been incessantly maintained; and it is highly possible that the tempests experienced in the canal of Messina, and on other parts of the coast, are attributable to other causes than the earthquake.

I ask therefore permission now to seek in facts alone the cause of the earthquakes in Calabria, and, laying all system aside, to examine into what may possibly have given rise to the almost total destruction of this beautiful province.

The motive force appears to have resided beneath Calabria itself, since the sea partook nothing of the oscillation or convulsions of the continent. This force seems also to have advanced progressively beneath the chain of the Appennines, in a direction from south to north; but what power in nature is there capable of producing similar effects? I put electricity out of question, which cannot for a year together accumulate in a country surrounded with water, in which every thing concurs to place this fluid in equilibrium. But fire remains. This element acting immediately upon solid bodies, serves but to dilate them; in which case their expansion is progressive, and produces not such violent and instantaneous motions. When fire, however, acts upon fluids, such as air and water, it gives them an astonishing expansion; and we know that on such occasions the elasticity they acquire is capable of surmounting the most obstinate resistance. These appear the only means which nature can employ to occasion such effects. But throughout Calabria there are no volcanos. Nothing announces interior inflammation, or any fire concealed, either in the centre of the mountains or under their base; and such fire could not exist without some external symptoms. Dilated vapours, airs, rarified by a heat always active, would have escaped through some of the fissures or crevices in the soil, and have produced currents. Fire and flame would likewise have found passage through the same vents. A passage once obtained, compression would have ceased; the motive force experiencing no longer any resistance would have become null, and the earthquakes would not have been of such long duration; none of these phenomena occurred; we must therefore give up the supposition of an inflammation acting immediately from beneath Calabria. Let us now consider if by having recourse to a fire foreign to this province, and acting upon it only as an occasional cause, we may be able to explain the phenomena which accompanied these shocks. Let us, for example, assume Etna in Sicily; and let us suppose large cavities beneath the mountains of Calabria, a supposition which cannot be refused. There can be no doubt but there are immense subterranean cavities, since Mount Etna, being accumulated by its explosions, must have left in the interior of the earth vacancies proportionate to its enormous mass.

The autumn of 1782 and the winter of 1783 were very rainy. Interior waters, increased by those from the surface, may have run into the focus of Etna; they would in consequence be converted into very expansive vapour, and strike against every obstacle

to their dilatation. Provided these should have met with channels conducting them to the cavities below Calabria, they would have been capable of occasioning all those convulsions of which I have given a description.

Let us suppose now, in order to make myself more easily understood, that these cavities with their channels of communication imperfectly represent a retort laid on its side, the neck of which should be the length of the coast of Sicily, the shoulder beneath Messina, and the body below Calabria. The vapour rising impetuously, and driving before it the air with which these cavities were previously filled, would first strike against the shoulder of the retort, and afterwards turn to engulf itself in the body. The force of impulsion would act first against the bottom of the vault, and afterwards by re-percussion against its summit, whence it would be revolved and reflected on all sides, so as to produce the most complicated and singular movements. The thinnest parts of the retort will be those which would tremble most at the shock of the vapours, and most readily yield to their impulse. But this water, rarefied by fire, must condense by exposure to the cold which reigns in these subterranean places, and the action of its accidental elasticity cease as promptly as its first efforts were instantaneous and violent. The vibration of the external surfaces ceases suddenly, without its being known what can have become of the force which has occasioned such disorder. It only recommences when the fire resumes activity enough to produce sudden vapours anew, when the same consequences result as long and as often as water falls on the burning focus.

But if the first cavity be divided from a hollow of similar description, merely by a wall or slender partition, and if this separating part be broken by the elastic vapours striking against it, the former cavity will then only serve as a channel of communication, and all the impulse will then be directed against the bottom and sides of the second. The focus of the shocks will appear to have changed its seat, and the oscillations, in the space before acted upon with greatest violence by the earthquakes, will be but feeble.

Let us now apply these necessary phenomena, and suppose one or more cavities placed below Calabria, the seat of the earthquakes. The plain, which indisputably was the thinnest part of the vault, is that which would first evince the impression it received. The town of Messina, built on a low shore, experienced a concussion which did not affect the houses built on eminences. The motive power ceased as suddenly as it acted violently and all at once. When on the 7th of February and 28th of March the focus appeared to have changed its position, the *Plain* suffered scarce at all. The subterraneous noise which preceded and accompanied the shocks seemed constantly to proceed from the south-west, in the direction of Messina. It resembled thunder roaring under vaults. Thus without having any direct proofs to produce in support of my theory, it appears to me to meet all circumstances, and explain simply and naturally all the phenomena that occurred.

If then Etna, as I have said, be the cause of the earthquakes, I may further affirm that for a long time it has been preparing the misfortunes of Calabria, by opening gradually a passage along the coast of Sicily to the foot of the Neptunian mountains. For during the earthquakes of 1780, which threatened Messina throughout the whole summer, pretty strong shocks were felt all along the coast from Taormina to Faro. But near the village of Alli, and the river Nisi, which lie almost in the middle of this line, the concussions were so violent as to give room for apprehension that a volcano would open itself a passage. Each concussion resembled the effort of a mine, which should not have power to spring its object. It seems as though at that instant the volcano opened itself a free passage for the expansion of its vapours, since in 1783 the vibration was almost null on that part of the coast of Sicily, while at the same time Messina buried beneath its ruins a part of its inhabitants.

TRAVELS IN SPAIN:
CONTAINING
A NEW, ACCURATE, AND COMPREHENSIVE VIEW
OF
THE PRESENT STATE OF THAT COUNTRY.
BY THE CHEVALIER DE BOURGOANNE.

[Translated from the French of the Third Edition. Paris, 1803.]

ADVERTISEMENT PREFIXED TO THE THIRD EDITION.

THE absence of the author, who is at present in Sweden, has not prevented his paying attention to this new edition. He has been furnished with information, has made additions, and rectified errors which had occurred in the former editions; so that the present has at least one advantage over the preceding, that of laying before the reader an account of the changes which Spain has undergone since 1797.

It is deemed expedient in this place to make three observations, which may probably be of utility.

1. That as *rials* are frequently mentioned in the work, and many calculations are made in them, it will be considered that the rial here meant is equal to five sous of French money, so that by taking the quarter we shall have the value in franks*.

2. That as frequently as *hard* or *American* piasters are spoken of, dollars are intended, which, according to the course of exchange, or value of silver, are worth from five franks to five franks eight sous; but the *Spanish* piaster, which is that of exchange, is an imaginary money, the value of which at par is about three livres fifteen sous. Without regard to this distinction, much error may arise in computations.

3. The title of Don should never be placed immediately before the surname, as is the case in many French and some English works which speak of Spain. It precedes only the christian name. Thus Don Francisco de Saavedra should be said, and not Don Saavedra. When desirous of noticing a Spaniard by his family name alone, he is called Monf. de Saavedra, Monf. de Cevallos. When a man employs the Don without a christian name immediately succeeding, a Spaniard is used to consider it either as a mark of ignorance, unpardonable in the inhabitants of a nation whose intercourse with them is so continual; or what is worse, as a mark of contempt.

PREFACE TO THE EDITION OF 1797.

FROM the prejudices which the rest of Europe entertains with regard to Spain even at the present day, one is led to imagine that all the knowledge required respecting that country has been drawn from romance, or the superannuated notions respecting it handed down in ancient memoirs; rather should we conceive it, from our ignorance of it, to be situated at the extremity of Asia, than at that of Europe.

* In the translation the value is expressed in English money.



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The principal end of this work is to modernize these antique ideas, and to rectify these errors. Not but that within the space of the last twenty years many Descriptions of Spain have been published. Many interesting details, and much truth are to be met with in the Essays on Spain, by Peyron.

Three English travellers have written on Spain: *Twiss*, whose work is of little celebrity; *Swinburne*, whose observations are famous for their justice and acuteness; and latterly *Townshend*, who is somewhat reprehensible for the precipitation of his decisions, and his reliance on the credulity of his readers.

Chantreau, in 1792, published his *Lettres sur Barcelone*, and has given a new edition of them; and although his style be not the purest, notwithstanding his having sacrificed exact delineations to his inclination of displaying captivating pictures, his work may be read with some interest and utility.

As for the *Voyage de Figaro*, which, at the remonstrance of the Spanish government, ten or twelve years ago was suppressed, and which since that time has been reprinted with emendations; I mention it for those only who think that poignant sallies are a compensation for every other deficiency.

The author of the present work leaves to his two countrymen the merit of perpetual effusions of liveliness and malignity. Such as read travels merely for amusement, or having their wonder excited, will scarcely choose this for their perusal. In it the author has above all things sought to be just and impartial. But justice and impartiality, although they sometimes may astonish, seldom entertain.

The author of this work has perhaps no other advantage over his predecessors than what arises from his having sojourned for a number of years, at different periods, in the country of which he gives the description; from having had a long intercourse with almost all classes of the Spanish nation, and having studied with some attention its manners and its language.

In 1789 he published the result of his first remarks, after a residence of eight years. Since then he has made two journeys into Spain; at one time spending more than a year in the country, charged with a mission of importance. On this occasion he applied himself to obtain more recent and precise ideas of different objects. This edition differs therefore materially in many respects from the first, and presents many objects not treated of in the former.

In 1789 the author, for certain reasons, deemed it expedient to keep concealed. The same motives no longer prevailing, he now avows himself. He hopes that his work, far from losing by this circumstance, will possess an additional title to the confidence of his readers. Less under constraint in expressing his opinion than what he was seven years ago, he will now explain himself with that frankness which is the duty of every writer who seeks to establish a claim to esteem.

He who is desirous to speak of any nation without giving room for offence, and at the same time would abide by truth, has two rocks which he must avoid splitting upon; flattery, which can but be insipid even to the object of adulation; and satire, which is as much repugnant to equity as to good nature. The author will endeavour to pursue a mean. Perhaps he may now be more fortunate than on his first appearance. On the one hand, readers strangers to Spain imagined that gratitude had made a parasite of his pen; on the other, some Spaniards took umbrage at certain avowals which were dictated by truth. Emboldened by the innocence of his motives, he dares in this new edition to brave these double dangers, persuaded that in endeavouring to conciliate all, he runs the risk of pleasing none.

The same course as he pursued in his first edition will be here followed. Entering Spain by Bayonne, he will proceed to Madrid, pausing by the way at whatever may appear worthy of digression. In the capital he will examine the different branches of administration, and those matters in particular which may tend to develop the real manners of the Spanish nation. Thence he will advance to the southern part of the kingdom. Returning to the capital, he will make some excursions in the neighbourhood, particularly one into Arragon; re-entering France through the kingdoms of Valentia and Catalonia.

His object is to present a Picture, of which the Travels will simply be the outline. His Travels might have appeared incomplete; he has used his best endeavours that his Picture should not be so.

THE PICTURE OF MODERN SPAIN.

CHAP. I.—*Carriages, inns, roads. Details relative to Biscay; its liberties; its privileges; the patriotism of its inhabitants; Bilboa, St. Sebastian, Victoria, &c.*

IN the month of November 1777 I went first to Spain, as secretary of the French embassy, a few months after the formation of the new ministry of that power; and at a time when, to sound its disposition relative to the grand quarrel between North America and the mother country, was a matter of high importance.

Of the three roads * known from time immemorial, I fixed upon that of St. Jean de Luz. On arriving at Bayonne, instead of taking post horses from Bayonne to Orogne, which is five leagues distant from the former, and two from the frontiers, I exchanged my carriage, as most travellers do, for a vehicle not very elegant, called by the Spaniards, *coche de colleras*, and which, till we are used to it, excites many alarming apprehensions. This carriage is rather strong than commodious, and drawn by six mules, to which the voice of the conductors serves both for spur and bridle. On seeing them fastened to each other as well as to the shafts, with simple cords, and their straggling manner of going, as if without any kind of guidance, in the crooked and frequently unbeaten roads of the peninsula †, the traveller imagines himself at once entirely abandoned to the care of Providence: but on the appearance of the least danger, a single word from the chief muleteer, called *el mayoral*, is sufficient to govern and direct these docile animals. If their ardor abates, the *zagal*, who is his postillion, jumps from the shafts, where he is stationed as a sentinel, animates them with his voice and whip, runs for some time by their side, and then returns to his post, where he remains until called by some similar circumstance to repeat his services. This incessant vigilance of the two conductors soon

* It is well known there are three frequented roads leading from France to Spain; the one from St. Jean de Luz to Iruñ; another from St. Jean Pied de Port to Roncevaux; and the third from Bèloun to Jonquièro. What however is not generally known, and what I only learned in 1795, from an engineer who had examined with care, and taken drawings of the different gorges and defiles of the Pyrenees, is, that from the Col de Bagnouls, which is the nearest defile to the Mediterranean sea, to the valley of Aran, near the sources of the Garonne, there are seventy-five passages through the Pyrenees, of which eight-and-twenty are practicable for cavalry, and seven for carriages or artillery. One of these latter, and of the existence of which no doubt can be entertained, is the Col des Orts, running parallel with that of Perthus, on the other side of Bellegarde; for, in 1792, the Spaniards, by this passage, entered St. Laurent de Cerdu, and there invaded two of our districts.

† This is the appellation usually given to Spain by the inhabitants, on account of its being surrounded by the sea, except on the side next the Pyrenees. This term was, without doubt, adopted at the time that Portugal formed a part of the kingdom; since its disunion, it is, as far as regards Spain, incorrect.

relieves the traveller from his fears, who, notwithstanding, remains astonished that more accidents do not happen from so dangerous a manner of travelling. He reconciles himself, however, more easily to this than to the Spanish inns, which, for the most part, are entirely destitute of accommodation. Travellers are badly lodged and served; and those who wish for the least tolerable repast, must themselves apply to the butcher, baker, and grocer. In this respect, however, there has within these few years been a change perceptibly for the better. Before the administration of Mr. de Florida Blanca there were no public carriages in Spain, nor one road on which the traveller could go post otherwise than on horseback; and if that be excepted which passes through Galicia from Pontevedra, almost to the Western Ocean and turns to Corunna; another North of Castile running from Reynosa to the sea; those of Navarre and Biscay, the fruits of the patriotic efforts of their inhabitants, not more than ten leagues of tolerable road was to be met with at any time throughout all Spain. This minister, who possessed an almost unlimited authority, would have rendered material service to his country, if instead of being satisfied with half measures he had followed up with vigour the resolutions with which he set out; he has however within the period of his fifteen years administration sketched out some useful improvements. From 1777 to 1789 he was not at all times faithfully a friend to the alliance with France, notwithstanding his professions of attachment. His irascible disposition, and the jealousy peculiar to his country, had given her more than one cause of complaint. From that period he stood forth one of the most bitter enemies of the revolution, and would gladly have strangled it in its birth. Were he still possessed of power it might be difficult to do him justice: disgraced, to do so becomes a duty.

In the first place then, Spain owes to him the establishment of a coach carrying six passengers which sets out twice every week from Bayonne to Madrid, performing the journey in summer time in six days, and in eight during winter. In the spaces of time which intervene between the arrival of the diligences, the mules used for drawing them are employed in forwarding persons who take their own carriages with them; and thus it was that I travelled in 1792 from Bayonne to Madrid. This establishment was carried on by a private person in 1789, but being taken the succeeding year out of his hands it has since been continued at the charge of the king, but was suspended during the war. That it should speedily be re-established is highly desirable, as a means of allowing an easy intercourse for the individuals of both nations, already prepossessed in favour of each other during the long continuance of a close alliance, and with whom a state of warfare has only tended to heighten esteem, serving at the same time by affording a flux to that hatred which transitory circumstances had accumulated, to make them for time to come sensible of the value of each to the other, notwithstanding the difference of their two governments. The bonds which unite courts are as transient as their caprices. Family interests, interests of even minor value, have much influence on their deliberations. A popular government once well consolidated is only acted upon by powerful motions. Intrigue, ceremonial trifles, the frivolous pretensions of vanity, have less sway over its determinations. How many sources of quarrel are there not thus annihilated! The responsibility to which it is liable prevents the capriciousness of levity. While it disdains to dissimulate the injuries it feels, it punishes those only which are of magnitude. Nay I am doubtful whether it be not better for a monarchical government to have to treat with a republic, rather than with one formed upon the same plan as its own, and whether it may not contract alliances more durable and less liable to convulsion with the one than with the other. Thus in a marriage we frequently perceive that domestic peace is more the result of an affinity of character than of an assimilation of feature: but we

are digressing widely from the useful establishments, of which the first idea is due to Mr. de Florida Blanca.

The improving of the highways chiefly occupied his attention. In 1777 there were no good roads between Bayonne and Cadiz except those of Biscay, and Navarre, and that which leads from the Escorial and Aranjuez to the capital. In 1792, I met with one of an excellent description, running the whole distance from Irun to four leagues beyond Burgos; and which was continued, with short interruptions, as far as Madrid. It would have been completely perfected, but for the obstacles which war, however fortunate it may be, uniformly throws in the way of useful labours. There want at this time no more than twelve leagues to be completed, to make the road from Bidasoa to Madrid one of the finest in Europe. Very little is wanting to that from Madrid to Cadiz. In 1778 the latter was almost impassable in bad weather. In 1785 it was in great measure repaired, and carriages began to run post upon it. It is now almost entirely finished; and communication between the two most important cities of the peninsula is, at length, become both easy and expeditious*.

As for inns, in spite of the attention of the before-mentioned minister, they are at present very far from perfection. Their improvement, projected and undertaken by him, is a more difficult task in Spain than elsewhere. His object meets with obstruction in regard to place, manners, fiscal rights, and, in a degree, from the constitution of the country, which authorizes exclusive privileges and monopoly, and vests the power, as an appendage to signorial rights of selling certain commodities, in the lord of the manor, who delegates his authority to an inhabitant; and the latter strictly enforces his right. It was necessary to capitulate upon these hindrances, and, where they could not be done away with, to adduce a remedy as well as possible. Notwithstanding these impediments, for some time back very tolerable inns are to be met with in Spain. On the roads along which the coaches run, some are established, provided with beds, linen, and even plate; and the innkeepers are allowed to keep eatables for travellers. Besides, on this road there are others which are pretty good, particularly in principal towns; but every where else to the present day one must expect inns entirely destitute of conveniencies, and so disgusting, in short, as not to falsify the accounts of travellers.

In this respect, the Spaniards have not to look for any speedy amelioration. Every thing is linked together in what constitutes the prosperity of a state. Without good highways, good inns are not to be expected; and where both one and the other are wanting, whence are to come the travellers whose commerce in turn supports the roads and inns? On the other hand, in order to entice travellers, a country must possess some advantages either on the side of instruction or gratification. One must either look to meet with amusement in visiting it, or improve one's health. Particularly if it be at one of the extremities of Europe, the traveller is there to be attracted by monuments of the arts, by the prospects of bustling industry, by a grand central commerce; and must not have to feel a want of the comforts of life, the charms of society, and civil and religious liberty. But who will take a trip to Spain, merely to behold, here fine roads traversing arid plains, as is the case in the two Castilles; there, dreadful roads in countries blest with fertility and industry, as along the coasts of the kingdoms of Valencia and Catalonia; to meet with towns deserted and in ruins, a court not abounding with delights, few monuments, the arts but in their cradle, a burning climate, and the inquisition?

* There has for a long time back existed a method of travelling in Spain, very quick but very costly, by sending changes of cattle forwards to the different stages along the road. These teams of six mules, which are put to the carriages in the twinkling of an eye, will travel five or six leagues with greater dispatch than can be done post on any road beside in Europe.



Spaniards, estimable neighbours, allies worthy in so many respects to be better known, continue to improve your roads and your inns! We shall at least be able to traverse your country commodiously and easily; but in order to engage our stay, in order to please us, many advantages are wanting to your nation, some are refused it by nature, to obtain the others must be a work of perseverance and time.

Leaving Bayonne we pass through St. Jean de Luz after traversing a very uneven and ill-kept road for the space of nine or ten miles. Afterwards one has to cross a small arm of the sea over a bridge, on the other side of which is the suburb of Sibourre. Shortly after the steeple of Orogne is discerned at rather more than a league from Irun, the first Spanish village on the other side of the Bidassoa. This little river, which serves as a boundary, famous in the political history of Louis XIV. from the island which it forms at a small distance to the right of the place where the river is passed, was formerly called the island of Pheasants. The interview between Cardinal Mazarin and Don Louis de Haro, which took place upon it, and of which the result was the treaty of the Pyrenees, occasioned it to receive the name of the island of Conference. Small, uninhabited, and almost a desert; like many persons of moderate abilities in the world, it owes its fame to a fortunate occurrence.

As soon as the traveller has passed this island, he is in Biscay. The country which he leaves varies little from that he enters upon, but the difference between the last roads of France and those at the entrance of Spain even in 1793 were much in favour of the latter. The roads of Biscay, those at least which run from North to South, may be said to be among the finest in Europe. Few countries laboured, in this respect, under greater difficulties. Biscay, which joins the Pyrenees, in this quarter much less elevated than towards their center and eastern range, seems to be an extensive continuation of these mountains to the borders of Castile. In tracing a road in this part there were considerable descents to diminish, and high summits to turn with address. Such ground required all the art which can be displayed in the construction of roads. The three provinces (*Guipuscoa, Vizcaya, and Alava*) of which Biscay is composed, joined their efforts to accomplish this end, as is usual with them when their common interest is in question. This part of Spain, which forms a striking contrast with the rest of the peninsula, deserves a more minute detail.

Each of these provinces has its particular government. In those of Biscay and Guipuscoa the orders of the monarch are not attended to before the administration has sanctioned them by its *exequatur*. They hold separately every year a general meeting, at which the administration renders an account of the manner of its employing the public money. Here the deputies assemble from all those commonalties which possess a right of delegation. These deputies are elected by the *ayuntamientos*, (municipal corporation,) who themselves are annually elected by the citizens; and, in order to be competent to this distinction, the possession of property is requisite to a certain amount.

These elements of representative democracy, although destitute of that perfection which certain modern publicists have imagined possible, caused a belief upon our invasion of their country, and even during the negotiation of peace, that these provinces were adapted, as well by their principles as by their position, to become an integral part of the French republic. It was an error. The Biscayans, however jealous of their liberty they may be, are yet attached to the dominion of Spain; and, if their pride cause them to reject the yoke of a despotic monarch, policy engages them to agree very well with their royal protector. They possess besides a species of aristocratic pride, which could not ill brook our principles of perfect equality. Enjoying exclusively their real or imaginary privileges, they would care very little for that liberty which they would have to

participate with six-and-twenty millions of fellow-citizens. An incorporation would have tempted them much less on the score of finance. The three provinces tax themselves to defray their several particular expences, and all they pay the king is a free gift, (*donativo*) which is rarely required of them, and which, if it were other than moderate, would not be granted. The states divide the sum agreed to among the different commonalties, according to their separate assessments, which are frequently modified.

In other respects, nature has done little for the three provinces of Biscay; and to this circumstance is owing, in great measure, their love of liberty, and the indefatigable industry which has engendered the prosperity they enjoy: for, unless where particular circumstances temper the pernicious influence of a fine climate, the more delightful countries of the world are peopled but with indolent beings, whose docile minds are prone to despotism.

The provinces of Biscay and Guipuscoa do not produce a sufficiency of grain. That of Alava furnishes enough not only to supply the two others, but a part of Castile, and Navarre in addition; and in 1790 and in 1791, its crop produced a profit to its inhabitants of upwards of 60,000*l.* sterling. It is true, agriculture is almost its only reliance: it is on this account, although of greatest extent, the least populous of the three provinces, not having more than 71,000 inhabitants. The *Senorio* (thus Biscay proper is called) has 116,000, and Guipuscoa, within a space of sixteen or eighteen miles by fifty in length, comprizes upwards of 120,000. The whole coast of this latter province is peopled with fishermen and sailors; the whole interior with peaceable farmers. Until circumstances occurred to excite an animosity, which declared itself in 1793, the people of Guipuscoa lived on tolerably friendly terms with the neighbouring French; there subsisted even between them, and particularly between the ports of St. Sebastian and Bayonne, a commerce, partly of an illicit description, but highly beneficial to each nation, and which, at the return of peace, was eagerly renewed.

Bilboa is the most considerable town of all Biscay, although it contains no more than 13,000 or 14,000 inhabitants. Some, however, of its former manufactories have declined. Its tanneries, once so productive, cease to be so, now that the hides exported from America cannot be imported directly to Bilboa, and are subjected to heavy duties when shipped at one of the ports of the peninsula for theirs. Their economical mills, from which they were used to derive such material advantage, are no longer occupied. The trade of Bilboa is now its principal reliance. This is very considerable indeed, for all kinds of merchandize are imported at and expedited from Bilboa. There are shipped, most of the wool which Spain exports, a quantity of iron, many loads of chefnuts, the principal produce of the soil of Biscay proper, in other respects ungrateful; and it is at Bilboa that most of the articles are imported from the various parts of Europe, for the supply of the northern parts of Spain. Its principal commerce is with England, France, and America. In the town there are two hundred mercantile firms, among which are some Irish, some German, and seven or eight French*.

Strangers, who reside at Bilboa, have little reason to speak well of their treatment. Liberty, jealous and suspicious, exercises there a sort of despotism, which deforms those qualities of the government that are interesting to the philosopher. The *Senorio* maintains with obstinacy against the crown its incomplete and, in a great measure, chimerical privileges; and, with great difficulty, admits to the enjoyment of them those who are born out of their territory. Formalities the most tiresome must be submitted to by

* Within these seven years Bilboa has experienced many changes. War has not been so injurious to its commerce as might be apprehended. The demand for Spanish wood has rather increased than diminished. In the mean time, a part of their funds remaining unemployed, they have laid them out in building, and the town has received much embellishment.

those it feels disposed to receive; and the French, in particular, up to the period of the last rupture, were not the least ill used. A foreigner at Bilboa is not allowed even to hire a house in his own name, but is obliged to borrow that of an inhabitant; and, in order to be treated like a stranger by the Biscayans, it is sufficient that you be not a native. When a stranger is disposed to become naturalized in Biscay, even if he be a Castilian, he is obliged to prove his *filiation*, that is to say, to certify that he be not descended either from a Jew, a heretic, or from parents who have carried on any base profession. The proofs required for the *nobles* of Biscay are long. To satisfy themselves, commissaries are dispatched, at the expence of the candidate, to his native place, who examine his papers, and make enquiries, and who have an interest in procrastinating their profitable mission. Doubtless there are modes of avoiding, or, at least, shortening these formalities; but, whether owing to the predominance of envy, or malice, no part of the the inconveniencies, particularly the expence, is alleviated; and I know more than one novice, who had undergone every form to the letter. It is not every where that the right of citizenship is purchased equally dear.

Bilboa is situated near the sea, on the right bank of a river of no great length, but deep enough to receive merchant vessels of great burthen. This port is not the only one worthy of notice on the shores of Biscay: St. Sebastian and Passage deserve particular mention.

There is no road for carriages from Bayonne to Bilboa, and travelling all along the coast is very inconvenient. But from *Hernani*, the first considerable borough which succeeds Irun, a very fine road leads to St. Sebastian, over a group of mountains, from the summit of which a bird's-eye view of it is obtained. This little city is only joined to the continent by a low and narrow tongue of land. Its port, if an artificial shelter, formed by jettys capable of receiving twelve or fifteen vessels deserves that name, is commanded by an eminence, on which an old castle in ruins is discerned. Its smallness is very perceptible from the spiral ascent to the castle. The town is tolerably well built, and much bustle reigns throughout it. It is the capital of Guipuscoa, and the residence of the governor of the province.

From St. Sebastian to go to Passage, a short league distant, you keep by the sea, passing over the mountains, into the bosom of which a large gulph projects, apparently inclosed on every side, and which, at first, more resembles an extensive lake in the middle of the country, than a bay of the sea: it is the port of Passage. It must be crossed in order to reach the town whose name it bears; and, with much agreeable surprise, the traveller here meets with a crowd of young Biscayan damsels, disputing in their native tongue, (unintelligible even to Spaniards,) for the honour of guiding the rudder over the bay, which is about half a league wide. The town is built within the confined space between the foot of the mountain and the bay; it is commanded by a castle, whence on one side you have a view of this vast basin, and, on the other, of the sea.

Port Passage, one of the largest harbours, and perhaps the most safe of any in Europe, is material to the prosperity of Biscay; and the sacrifice thereof, which it is said there was once on our part an intention of exacting from the inhabitants, as well as St. Sebastian, and Fonterabia, another little port, at the mouth of the Bidasoa, would have been much more grievous to Spain, than it could have been advantageous to us. Here I must remark, that grasping ambition sometimes makes wrong calculations; whereas enlightened policy looks into futurity. There are possessions extremely valuable to a neighbouring state, which, for the sake of mutual advantage, are much better in its hands than they could be in ours; distinct from their being by their position, as proved by many examples, subject to momentary subjugation; so that belonging to a neigh-

bour of whom we may be desirous of making an ally, by leaving them in his hands they afford an additional pledge for his fidelity ; whereas, by their entire subjugation, they might furnish an obstacle to a sincere reconciliation. Gibraltar, ceded to the English by the treaty of Utrecht, is, perhaps, one of the safest guarantees of the alliance between France and Spain ; and by tradition we learn, that this view of the matter did not escape the penetration of M. de Tercy.

Happy Biscayans, peaceably then enjoy the three ports which are the chief sources of your prosperity ; and let us hope that the French, again become your allies, will not re-occupy them, except for their protection against the common enemy.

It is impossible in travelling through it to avoid admiring the country which they have animated ; work of those Biscayans without a monarch's assistance, who for them lays aside the title of *King* for that of lord. Those three provinces are the asylum of liberty and industry. In crossing Biscay, we perceive that their presence has given animation to every object ; nothing can be more delightful than the hills ; nothing more cheerful than the cultivation of the valleys. For thirty leagues, the distance between the Bidassoa and Vittora, not a quarter of an hour passes but the traveller discovers some village or hamlet. The towns of Villafranca, Villareal and Mondragon, have an air of independence and plenty. What a difference in the aspect of this country and that of the neighbouring province ! I am far from wishing to throw ridicule on the Castilians, whose virtues I esteem ; but they are silent and melancholy as their plains ; and bear in their austere and fallow visages the marks of lassitude and poverty. The Biscayans have a different complexion, and quite another countenance and character. Free, lively, and hospitable ; they seem to enjoy their happiness, and wish to communicate it to those who come among them.

I shall long remember what happened to us at Villafranca. Arriving there early, on a lovely evening in autumn, with another traveller, we wandered on the outside of the town, amusing ourselves with observing the varieties of its cultivation. Several groups of peasants in different parts of the orchards engaged our attention ; in turn we excited theirs. A moment of mutual curiosity caused us to approach each other. We both spoke Spanish with tolerable facility ; we knew that it bore no resemblance to the language of the Biscayans ; but we could not imagine that in a province so long subjected to Spain, that that of the sovereign should be utterly unknown : we were obliged to have recourse to the primitive language, and gave these good people to understand that we wished to taste their fruit. They immediately strove who should be the first to oblige us ; our hands were soon filled, and we were strongly solicited to fill our pockets also. Some of the peasants went to procure us fowl and fresh eggs ; we had great difficulty in preventing them from being offended at our refusal, and regretted that we had no other interpreter than our looks and gestures. We were obliged, at last, to leave them ; but as we had rambled without directing our steps to any particular place, and were unable, without a guide, to find the way back to our inn, our benefactors perceived our embarrassment, and each was emulous to become our guide. Those whose services were not accepted, kept for a long time, their eyes fixed upon us. They could not but easily discover that we were surprized at their hospitality, and seemed somewhat hurt on the occasion. We left them some marks of our acknowledgment, which they received in such a manner as proved to us the disinterestedness of the reception we had met with. We seemed to quit those amiable natives of the south-sea islands, whom Messrs. Cook and Bougainville have taught us to love, and yet we were not twenty leagues from Bayonne.

These Biscayans, who are so different from the Castilians, seem the subjects of a different government. Their province is considered, in many respects, as beyond the

Spanish

Spanish frontiers. Except a few restrictions, all merchandize enters, and is never examined or taxed but at the interior limits. The province has other privileges of which the people are very jealous, but which have recently been more than once attacked; for example tobacco and foreign muslins have been absolutely prohibited, so precarious a blessing is liberty in every country. Nevertheless the Biscayans yet preserve many of their forms. We have before noticed that the impost which they pay the king has the title and character of a free gift (*donativo*). If the king be in want of a certain number of soldiers or sailors, he notifies his wishes to the province, and the people find the most easy means of furnishing their contingency. The Monarch exacts nothing with an air of authority, he is almost always obliged to treat with them. On many occasions has Biscay set at nought the orders of the court, and the supreme decisions of the council of Castile, when it has judged them to be incompatible with its ancient statutes. It has beside a particular court of justice. In Biscay proper an appeal lies from the sentence of the corregidor to a magistrate called a chief justice, (*juez mayor*) who is at the same time the guardian of privileges. It is true he is nominated by the King, and can look to his favour alone for attaining the more eminent stations to which he may aspire.

The Biscayans maintain, what they term their liberty, with an energy which does honour to their character. In its conduct towards them, the court appears to treat them rather with esteem, than to be apprehensive of any insurrection. On the other hand, it must be allowed that, more skillful and better adapted for intrigue than what free men are in general, they have discovered a method, and particularly within the last century, of learning the whole value due to these appearances, having incessantly in the army, in the navy, in different offices, and even in administration, some of their countrymen for defenders about the throne. Notwithstanding this, they have oftentimes shewn themselves worthy of liberty, and to it have made more than one valuable sacrifice. They have an aversion to custom houses, which, on various occasions, has been shewn to be insurmountable. In 1778 the minister Patintro, being desirous of forcing them upon them, nearly originated a general rebellion. When, in 1778, the trade with South America was thrown open to several ports of Spain, the Biscayans, if they had been willing to admit of custom-houses, might have participated in the advantage with the rest; but in the officers of the customs they beheld so many satellites of despotism, and their noble mistrust rejected the intended favour of the Sovereign. They can make no commercial expedition to America, without preparing it in a neighbouring port, so that the most industrious people of Spain, the most experienced in navigation, and the best situated for such a commerce, sacrifice a part of these advantages to that of preserving, at least, a remnant of liberty. Thus, before the war which gave independence to British America, all the inhabitants of one of the provinces engaged themselves, by an oath, not to eat lamb, in order to increase the growth of wool, with the intention of rendering useless the manufactures of the mother country.

In fact, the Biscayans have had from the beginning of the present century an advantage over all Spaniards in American commerce. The company of Caracas, known also by the name of Guipuscoa, had warehouses at Port Passage, and thence made their shipments; but this company, in the last war with England, was unfortunate, which has induced government to relieve it from a burden, that, from circumstances, became highly inconvenient—to release it from the charges of administration, without excluding it from trading with the Caracas.

Biscay is remarkable for its roads, cultivation, and privileges, but more particularly for the industry of its inhabitants, which is chiefly exercised upon iron, the principal production of the province. In order to improve this manufacture, the Biscayans have

recourse to foreign correspondence, public lectures and travelling. At Bergara there is a patriotic school, where metallurgy is taught by the most able professors; some of which, such as our inestimable Proust, have been invited from the neighbouring states. Students in chemistry have been sent to Sweden and Germany, where they have acquired, as well in the bowels of the earth as in the shops of manufacturers, such knowledge as has already been profitable to their country; for this word is not a vain sound in Biscay. The inhabitants, separated by their situation, language, and privileges, and confined within narrow limits, are called by nature and policy to feel the spirit of patriotism, and are obedient to the call. This noble sentiment produced the school of Bergara, where the nobility of the country are brought up at the expence of the states, and those patriotic societies, which have served for a model to the numerous ones of this description spread over all Spain within these twenty years; and, not long ago, the same patriotism has given new employment to the industry of the Biscayans, by digging the port of Deva, between St. Sebastian and Bilboa.

We have given a sketch of Biscay as amateurs of liberty and public economy. We shall now proceed through the province, simply as travellers.

CHAP. II.—*Continuation of travels through Biscay. Details respecting Victoria, Pancorvo, Burgos. Canal of Castile. Valladolid. The two cities of Medina. Excursion into the Kingdom of Leon. Relations concerning Salamanca, Segovia, &c.*

THE first town we come to after leaving Irun is *Hernani*. It is surrounded by mountains, which, in the space between them, contain a valley of rather cheerful appearance. A small river fertilizes it, the course of which is followed for some time after leaving *Hernani*, and is met with again at *Tolosa*; (the first place at which the travellers by the coach sleep); it is afterwards lost sight of until you reach *Mondragon*. In the course of this journey it is crossed several times over elegant and substantial stone bridges, a species of luxury to which, in constructing highways, the Spaniards are much addicted.

At some leagues from *Tolosa*, you pass through the small town of *Alegria*, the cradle of several distinguished subjects; among others, of the *Mendizabal*, well known in the navy. *Villa Franca* is the next town at which we changed horses; the following one is *Villa Real*, beyond which we had an immense steep hill to surmount. At the foot of this mountain is *Anzucla*, whence a fresh change of horses takes one forward to *Mondragon*.

Two great leagues before you arrive there, the road divides into two branches, one of which leads to *Madrid*, the other turns to the right and finishes at *Durango*, upon the road to *Bilboa*. Beyond *Durango* the road is impassable for carriages; so that to travel commodiously from *Bayonne* to *Bilboa*, it is requisite to ascend as high as *Victoria*: but there is a road which is tolerably good, that runs direct from *Madrid* to *Bilboa*, passing through *Ordunna*, where the interior custom-house for Biscay is established.

From *Mondragon* to *Victoria* is five great leagues. They are travelled over in less than four hours, notwithstanding one has to pass the difficult mountain of *Salinas*, famous for more than one accident. A party in a coach, one of which was a friend of mine, met with one some years ago, which merits a slight digression, on account of its serving to shew the manners of a class of the Spanish nation. There are very few muleteers, few carters, on sitting out on their journey, few coachmen, who, on mounting their box, omit making the sign of the cross, mumbling a prayer, few but what carry some relics

relics or scapularies. With this preliminary, with this talisman, they consider themselves secure from all mischance. The conductor of the carriage alluded to had not neglected these wise precautions; yet were they useless. In climbing the mountain of Salinas, his mules beguiled his care, and drew the carriage with them over the precipice. He escaped with a few scratches, and his passengers with some slight bruises. The muleteer might have seen, in the slowness of his chaffisement, a signal evidence of the protection of Providence, and its agents. But not so; while his passengers were extricating themselves, gathering up their straggled property, and bemoaning trifling losses or damage, he, in a fit of passion, which had little of sanctity in it, tears away his relics from under his cloaths, and the scapularies with which he was loaded, rends them in pieces, and, dashing them on the ground, thunders out a litany of somewhat a new description: "*Al demonio Santa Barbara; a los diables San Francisco; al infierno nuestra Senora del carmen,*" &c. &c.—"To the devil with St. Barbara; to the congregation of hell with San Francisco; to hell with our Lady del carmen," &c. &c.; cursing one after another the inefficiency, or treason of all the saints of both sexes, to which he had addressed his vows; giving them an energetic notice that they had irrecoverably lost all his confidence. Less than this would have been sufficient to console, and even enliven his passengers.

After passing the town of Salinas, you continue to ascend for some time, when, descending again, the mountains appear to decline sensibly, become more unfrequent, and are at greater distance from each other. After entirely clearing them, the traveller arrives at Vittoria, capital of the province of Alava. It stands in the middle of a well cultivated plain, abounding in villages; the town is ill built, and the streets badly paved; it, however, exhibits the appearance of activity and industry. Within these few years a square has been built, each side of which contains nineteen arcades. This edifice, notwithstanding some defects, would be an ornament to a city more considerable than that of Vittoria: the plan was given by M. Olavide, a native of Vittoria. There is a pleasure in seeing a citizen thus dedicate his talents to the embellishment of his native country, in which they were cultivated.

Vittoria being the last town of Biscay towards Castile, the traveller is subject to formalities, sometimes very rigid, but at all times troublesome. Every thing which enters or leaves the province is here minutely examined, suspected letters are here intercepted, and those which are mysterious are decyphered; couriers, those even which belong to the court, are sometimes detained here, when their passports are abused for the purpose of smuggling, particularly of coin, which of all offences against the revenue is deemed in Spain the most unpardonable. I had no right to complain of my treatment in 1792: notwithstanding it was the period when the animosity of Spain towards every thing that related to our Revolution began to exhibit itself in every shape. On the contrary, I had great reason to speak well of every one with whom I had to do. M. d'Alava, who filled the office of governor, took upon himself to permit my entrance into Castile, simply upon my shewing my passport, although a formal permission from court was then necessary for going beyond Vittoria. In conformity to a recent law, the object of which is to encourage the building of carriages in Spain, a tax of ten per cent. on the value, as ascertained by an officer, is exacted on every carriage entering Spain, a certificate of which is given to the traveller; which levy is however returned upon its repassing the frontiers. Through the interference of a very obliging person in office, to whom I was recommended, I was exempted from the exaction, this gentleman taking upon himself to become my security.

These were not by many the only nor most precious demonstrations of kindness which I received from the obliging inhabitants of Vittoria. Some months afterwards, my family arriving from the north of Germany resided among them, while waiting for directions to proceed to me. One of my children was attacked with a serious illness. They shared our sorrows with us; they paid every possible attention to the child, and every tribute of consolation to the mother. Their extreme benevolence is stamped on our hearts in indelible characters. Respectable Alava, you, to whom beneficence is so natural, accept the homage of my gratitude; share with him my heart felt thanks, you inestimable women, matrons, who so frequently bemoaned your having no other medium to convey your cheering assurances, than that of a language unknown to the object of your commiseration; and above all, you, Don Antonio, whose sensibility is not inferior to your medical ability, and who seemed to attend your own child while watching over the health of that we were threatened with losing. And you, reader, pardon these effusions of a father's heart!

For those who value the quiet of the mind, the enjoyment of nature unadorned by art, and the means of living in plenty with cheapness, Vittoria is not without its attractions. Its climate is temperate, although the mountains which skirt its horizon, particularly towards the north, render the winter severe. The plain which surrounds it produces every requisite of life, and particularly excellent fruits and vegetables. The amusements, the luxuries of large towns, are here very little known; but here one may relish those innocent pleasures, delicious enjoyments of the heart yet uninfected with the refinements of civilization. At certain periods of the year, the festival of boys is celebrated, that of maidens, and that of married people; ceremonies interesting by their simplicity, which at once indicate the purity of their manners, and insure their preservation.

Leaving Vittoria, on its right is perceived the river Arriaza, which is crossed over a stone bridge. Afterwards you pass the villages of Publa and Arminon; then ascending a hill, about a league of high road presents itself, straight and of a superb appearance, being a raised causeway which leads to Miranda. Midway, on this road, a marble column rears its head, to denote the limits of the province of Alava and Castile; a monument possibly more pompous than the subject requires.

Miranda, a small town, at five leagues from Vittoria, is divided into two unequal parts by the Ebro. This stream, which formerly was the boundary of the conquests of Charlemagne towards the south, and as of ours in 1795, is one of those objects aggrandized by the magic colours of history, which is found much inferior to its reputation. It is true, at Miranda it is near its source, which is at the foot of the mountains of the Asturias; but the Ebro, which traverses the greater part of northern Spain, running from north-west to south-east, has, up to late times, remained almost wholly useless to navigation. In the course of this work we shall notice what has been done towards rendering it serviceable to the provinces it waters.

It is crossed at Miranda over a tolerably handsome bridge. Fronting is seen a stony hill, with a dilapidated castle on its summit, of no ornament to the arid scene. Shortly after we discover the high rocks of *Pancorvo*, which have a most picturesque appearance, and have already exercised the pencil of several travellers. At Mayago, two leagues farther, we enter the narrow valley inclosed between these rocks, half a league beyond the village whose name they bear. Shortly after, we meet with two other valleys, Santa Maria del Cubo, and El Cubo, where the wretchedness and idleness of Castile are visible in all their deformity. We then traverse vast plains tolerably well cultivated as far as

Bribiesca,

Bribiesca, a small town inclosed by a wall, which has four gates placed at equal distances. The road leaves it on the right. In 1777 and 1785 Bribiesca wore a melancholy appearance, it was destitute of verdure, and worthy of Old Castile. In 1792 it possessed some gardens and orchards. This was not the only change for the better which I remarked during my second journey to Spain.

The road from Irun to Bribiesca has always been excellent. It is generally lined with trees, which succeed but ill, and a profusion of stony limits. In parts it may be considered scarcely wide enough; for, desirous of avoiding the profuseness evident in the highways of France, they have nearly gone into the opposite extreme, notwithstanding Spain has less reason to fear a waste of land than France.

From Bribiesca to Burgos is six leagues, where you travel over a country the most arid and naked of any in Europe; passing through two of the most dirty and frightful villages in all Spain, Monasterio and Quintuna; near to which you cross a stone bridge, which is rather elegant. Burgos, the capital of Old Castile, is pleasantly situated on the right bank of the Arlançon, at the foot of a hill, on the top of which are seen the ruins of an old castle. This town was formerly opulent, industrious, and commercial; it now presents the image of poverty, idleness, and depopulation. It contains no more than 10,000 inhabitants. Its only business consists in the transport of wool to the northern coast for shipment. Its manufactures scarcely deserve mentioning, if that of leather be excepted, which is of no more than twenty years standing. It proves more than any other city in Spain, that the luxury of churches absorb and keep stagnant wealth sufficient to vivify entire cantons. The magnificence of its cathedral offers a shocking contrast to the sorry buildings which surround it. This imposing and well preserved edifice is a masterpiece of elegance in the Gothic taste. One of the chapels contains a picture by Michael Angelo, representing the Virgin dressing the infant Jesus, who is standing upon a table. The noble air which he gave to his figures is very observable in these, as is also the strength and correctness of design, to which he frequently sacrificed grace.

The cathedral is almost opposite one of the three bridges over the Arlançon. On the other side of the same bridge is a suburb, where a miraculous image, known by the name of *Santo Christo*, is to be seen; which is much better known, and attracts more notice than the picture of Michael Angelo. It is kept in a dark chapel, perfumed with incense, and full of *ex voto's* and silver lamps, and into which persons are introduced in a manner so mysterious, as to have something awful in it, even to those who are no way inclined to superstition. The crucifix is concealed behind three curtains, that are drawn one after another with a studied slowness, which adds to the religious solemnity. Simple people believe that its beard grows. Devotees attribute to it many miracles, but impartial eyes can discover in it nothing extraordinary.

Burgos is the birth-place of two famous captains, known even out of Spain; *Fernando Gonzales* and the *Cid Campeador*. In the time of Charles V. a triumphal arch of some taste was erected in memory of the former; and, latterly, Burgos has paid a similar tribute to the Cid, in erecting a monument on the spot where his house is supposed to have stood. The justice is due to the Spaniards to acknowledge that they reverence the remembrance of their heroes, and speak of them with the same delight as ruined persons of their former opulence; or rather let me say, with that national pride which evinces that, if their predilection for the noble and grand be lulled for a term of too long duration, it is not extinct, and only awaits opportunities to call it into action.

The new square at Burgos, consisting of uniform, but small and mean houses, deserves notice upon no other account, than its having in its centre a statue of Charles III. in bronze.

bronze. It is a bad likeness, and ill executed. It is remarked merely for being almost the only monument of this description in Spain. The Spaniards, however much devoted in general to their sovereigns, have been less prodigal than any other people of these tributes of adulation.

If the interior of Burgos presents little but what awakens gloomy recollections, its environs are yet embellished and fertilized by the course of the Arlançon. This river waters verdant meads, has three elegant stone bridges over it, within the space of half a league, and bathes the walls of two remarkable edifices situated below the town; the one, the monastery of Las Huelgas, a convent of women, the abbess of which possesses considerable privileges, and a jurisdiction bordering on sovereignty; the other, the King's Hospital, famous for its extreme cleanliness and salubrity. The Spaniards might give lessons to the best polished nations on these monuments of charity. No heart-deadening foresight as yet has made them apprehensive, lest the unhappy should find themselves so much at ease in this asylum, as to see its doors open to receive them without regret.

Near Burgos is still another building which merits the attention of the traveller: it is the chartreuse of *Miraflores*, where are the tombs of John II. and his wife, magnificent, at least in their materials, and the colouring of the paintings which adorn them.

Burgos has a sufficient number of trees in its neighbourhood for the ornament of its avenues and walks, although throughout the country, which is the coldest in Spain, there is a great scarcity of wood; a want felt through almost all the interior of the kingdom. In 1753 it began to excite the attention of government. An order of the council of Castile, the execution of which was entrusted to men of little intelligence, enjoined every inhabitant to plant five trees, and penal laws seemed to ensure its effect, but the government was deceived. In some places malevolence, in many, particularly in Old Castile, the established opinion, that trees attract birds to the destruction of grain, and, in several others, bad management, contributed to render this measure inefficacious; here, saplings which began to flourish, were cut down by passengers, and there, such as were in an apparently prosperous state, were transplanted from the spots where they grew, to others, where for want of care they perished; almost every where the order was fruitless. At length, towards the end of the reign of Charles III., recourse was had to the most effective means, those of example. The King, in the neighbourhood of Madrid, and at his residencies; the Infant Gabriel, in his grand priory of Malta; several grandees in Spain; many rich individuals, in what are called *their domains*; some patriotic societies, prelates, and even rectors; all, animated with that public spirit which gives enjoyment by anticipation of that wealth which, individually, few can look to enjoy, all these, reasoning like the old man of La Fontaine "*our grandchildren will here sit in the shade*;" conjointly formed better conceived plantations, sheltered from the devastation of travellers, as well as of animals; and already some orchards, and copses, variegated the monotony of the horizon, and enliven with verdure part of the naked and arid soil of La Mancha and the two Castiles.

The Arlançon again presents itself to view on leaving Burgos, and is scarcely ever lost sight of in any part of the road to Villadriga; a miserable, although agreeably situated village, to the right of the river, at the bottom of a vast plain, on which are some paltry vineyards.

We next perceive the Pisuerga, another small river, which runs from north to south, and the waters of which it was intended should be made to supply that canal of Castile, projected and begun in the reign of Ferdinand IV., afterwards almost abandoned to the injury of Old Castile, which has great occasion for such an opening for the sale and in-

crease of its productions. The canal was to begin at Segovia, and, following the course of the Eresma, which falls into the Duero, ascend again as far north as Reynosa, receive from the little rivers, in its passage, the tribute of their waters. Reynosa is but twenty leagues from Saint Ander, a sea-port. A road, but which will be ruined before the canal is finished, has been made to facilitate a communication by land with Old Castile. In 1792 the suburb road which I had travelled along all the way from Irun, ended at Estpar; since then it has been continued some leagues beyond Valladolid.

Continuing our way along the banks of the Pisuerga, and after having passed two steep hills, the feet of which are washed by the river, we arrive at *Quintana de la Puente*, near to a bridge of eighteen arches, and *Torquemada*, one of the most dirty and wretched towns in Spain. The Pisuerga is again crossed here over a bridge of twenty-six very solid arches, and which has lately been almost wholly rebuilt. Afterwards we arrive at the village of Magorz, where the Arlanza joins the Arlançon. A little farther, near Duennas, these two rivers unite with the Pisuerga, and run by Valladolid before they fall into the Douro, or Duero. Were it not for the course of the Pisuerga, the banks of which are extremely pleasant, and embellished at small distances by groups of trees, nothing can be more dull and less varied than the road from Valladolid to Duenna. Before we arrive at the latter town, which stands upon rather a steep hill, by the side of the Pisuerga, we see on the left a great monastery of Benedictines, called St. Isidro, fronting a new road, begun in 1784, by the governor of Palencia, which is one of the best in Europe.

This road, undertaken at a time when the project of rendering passable the great road leading to France was newly conceived, was constructed at the expense of the circumjacent communes, and may serve as a model for other nations to copy. It proves that an intendant may, in some circumstances, be good for something, as Mr. Turgot heretofore proved in Limousin. I shall further observe, that it may tend to shew that, in every district, an administrator acting by himself, severely attentive to his duty, responsible in himself, and long in office, is better able than any union of transitory administrators, however well chosen, to infuse into plans of a certain extent, that connection, activity, and emulation, which are necessary to ensure success; as well as that economy, which admits of the multiplication of useful undertakings.

Palencia is indebted to the attention of the intendant of its province, seconded by the chapter of the bishopric, for other ornaments and improvements. Situated in the center of a canton renowned for its fertility, (the *Tierra de Campos*,) it has, like many others, fallen off from its ancient splendor, and is no longer famous, except for the filthiness of its streets, the magnificence of its cathedral, and its manufactories of blankets, bays, and light stuffs, which are in great demand.

Duennas, which is only two leagues from Palencia, although agreeably situated, ranks yet amongst the saddest and dirtiest towns on this road. Some years back it possessed an inn, which travellers took pleasure in noticing as an exception. That which the coach stops at, on the contrary, is one of the most incommodious in Spain. Duennas has, however, some manufactories; among others, one of leathern bottles, which are the only vessels used for holding wine in this country.

After leaving the hills of Duennas the whole country, as far as Valladolid, is perfectly flat and naked. Immediately after leaving Cabezon and its great stone bridge, the steeples of that city are perceived. On this side, the entrance into Valladolid is pleasant, being through an avenue of trees, which has adjoining alleys serving as public walks.

In 1777, when I first beheld this city, I was shocked by the want of cleanliness every where discernible, and which disgusted more of the senses than one; eight years after I perceived an alteration for the better, and, in 1792, I found Valladolid not only much less dirty, but greatly improved. Agreeable plantations had been established a little previous along the banks of the Pisuerga, and on the *Campo Grande*, a square situated at one of the extremities of the city, remarkable for its immense extent and its thirteen churches.

It has another square much more regular than this, with three ranges of balconies, in which it is asserted twenty thousand persons might be seated. I had an opportunity of judging of its capacity on my first journey into Spain, when I chanced to arrive at Valladolid at the precise time of a bull-fight, an exhibition which happens but once in three years. How fortunate would this have been for an amateur: for my part, I was none, and the fight did not make me one. I was nevertheless struck by the concourse of curious people that the show attracted from all quarters for several leagues around. The famous *Torreador Pepehillo*, whom, since that time, I have frequently seen, had been sent for on the occasion from Madrid. He presented several bulls which he had slain to the ambassador that I accompanied, a custom generally followed where distinguished persons happen to be spectators; and each of these bloody tributes was a signal for a handful of gold thrown from the box of the corregidor, where we were seated, on the floor of the theatre of the exploits of Pepehillo. He certainly did not require such a stimulus, but I never beheld him more skilful nor more fortunate than on this occasion. Every thing in this spectacle, which was of three hours duration, was new to us; the scene itself, the treatment we received, the manners, the dress, and the language. At the end of this entertainment, the box of the corregidor was transformed into a refectory. We saw glasses of water handed round, chocolate, candies of every shape, and every colour; and knew not how to refuse the obliging importunities with which we were besieged. Gestures were the only expression of our declining them, and of returning thanks. After this who shall say *let a man know French and he may traverse Europe*. However from this exposure we formed an high opinion of the affability of the Spaniards, and their taste for sweetmeats.

The churches of Valladolid, those especially of the Dominicans and of *San Benito*, are elegant, according to the Spanish taste, that is, spacious and full of altars richly decorated and gilt. They moreover contain some tombs of white marble, admirably sculptured. The sculptures, as well in coloured wood as in marble, in detached groups, or bas relief, may be traced back to the revival of the arts in Spain; an epocha which produced Juan de Juni, Berruguete, Becerra, and others, who though little known out of the peninsula would yet do honour to more enlightened ages.

The new cathedral of Valladolid is represented by L'Abbé Pons as a fine building. I saw in it an enormous mass of dark-coloured stone pilasters round the nave of the Doric order, and a high wall which forms the back of the choir, and prevents those who enter from viewing the rest of the church. The Abbé Pons, who travelled as an amateur of the arts, frequently lavished praise, and criticism, on objects worthy neither of the one, nor the other.

Valladolid is one of the most considerable cities in Spain: it is the residence of a bishop, the seat of an university, of a patriotic society, of one of the seven grand colleges of the kingdom, and of one of the supreme tribunals called the chancery. Notwithstanding all this it scarcely contains twenty thousand inhabitants, while in the time of Charles V. it had a hundred and twenty thousand. At that time it furnished

all the necessaries of life; and was a bustling city, with a great trade; but indolence, and the great increase of priests and monks have annihilated almost all its advantages. The court which sometimes resided there, removing in the reign of Philip III. to Madrid, drew along with it most of the opulent families; and at present, nothing is seen but empty houses crumbling into dust on every side. Nor aught of its ancient splendor, but a prodigious number of sacred buildings. Without its walls, is a perfect waste, notwithstanding the fecundity of a territory fit for every sort of culture, and abounding with water; within, an equal deficiency of industry; its only manufactures which were a prospect of success, are light stuffs, and coarse camblets. Its gold and silversmiths were formerly celebrated, and deservedly so; there are still as many in one of the best peopled quarters of the town, but, at present, they are not the most ingenious.

Individuals have endeavoured for some years back to raise Valladolid from its state of insignificance. A school for drawing has been established there, and an academy, at which mathematics are taught; under the directions of the police, many quarters of the town have received improvement, and its neighbourhood, by new alleys and plantations of mulberry-trees; and two leagues off, a superb highroad towards Madrid, and eight leagues to Palencia have been completed, across a country still perfectly bare of trees; for the scarcity of wood, which caused Philip III. to quit Valladolid, has continued since his time to increase.

In the convent of Fuensaldagne, a good league from this city, the amateur of the fine arts meets with three paintings of Rubens, equal for their freshness of colouring to his best pieces. Semancas, which continues to be the chief depôt of the archives of the monarchy, is but two leagues from Valladolid.

Madder is cultivated with success in a part of the neighbourhood, as well as in the provinces of Burgos and Segovia, in the Asturias, Andalusia, Arragon, and Catalonia. This plant, which for a long time has been known to agree with the climate of Spain, did not awaken the attention of government before 1742. The cultivation thereof, which has made perceptible progress, saves Spain an annual tribute, which she was before accustomed to pay the Dutch, of 10,000,000 of rials. Spanish madder is cheaper, and better than any other, and foreigners begin to appreciate its value; even during the American war, the English drew it from the vicinity of Medina, and Ciudad Rodrigo, through the medium of the Portuguese sea-ports. This new branch of industry is the more valuable, from the great increase of the manufacture of chintzes in different parts of Spain: and, in order to encourage the cultivation of it, a duty of 45 rials per cent. is imposed on foreign madder imported.

That part of Castile which is on the right, travelling from Burgos to Segovia, a lost country to the modern tourist, who rarely passes over it, yet contains two cities, which deserve particular notice, were it only for the contrast which their present appearance affords with their former prosperity.

Medina de Rio Seco, formerly renowned for its manufactories, is reduced from a population of about thirty thousand to fourteen hundred chimnies. To it, its fairs were a source of so much opulence, that Spanish exaggeration furnished it the *Little Indies*, *India Chica*. There is no more than the ruins remaining of its strong castle, which was in vain besieged by Henry de Trastamare, in the war between him and the King Don Pedro.

A more lively subject of regret is met with in another town of the same name, Medina del Campo. This city, formerly the residence of several kings, the theatre of great events, and the emporium of an extensive commerce, and peopled with from fifty to sixty thousand inhabitants, has now no more than a thousand chimnies. Its celebrated

fairs, its trade in ~~bills of exchange~~, its large sale of Segovian cloths, the beauty of its edifices, the cleanliness of its streets, exist no longer but in the annals of history. What the ravage of centuries, joined to the havoc of those long and terrible wars which overturn whole empires, have scarcely been able to effect on the ancient cities which were any ways famous; two centuries of neglect and bad administration have operated on Medina del Campo, and some other cities of Spain. Time, with respect to her, seems to have hastened his course with tenfold rapidity; and, from the depth of the sepulchre wherein it is entombed, its grandeur may be looked upon as contemporary with the splendour of Persepolis and Palmyra. Singular example in modern Europe! what subject for reflection does it not furnish for some of its people?

After the churches, on which opulent idleness has always some funds to lavish, the most handsome building of Medina del Campo is that of the slaughter-houses. Philip II., whose extravagant undertakings so greatly contributed to the deterioration of Spain, has left, at least in this town, a monument of his benevolence.

The two cities of Medina bring us near to the kingdom of Leon; of which we shall just say a word before we resume the road to Segovia.

This part of Spain is one of the most arid and waste. On the road from Palencia to Leon, its capital, the canal of Campos is met with, begun under the administration of Ensenada, and designed to enliven the commerce of Castile and Leon; but no more than twelve leagues of it are yet completed; that is to say, six leagues in one part, and as many in another. It was intended to end at the Douro, running by Palencia and Duennas, but was relinquished for a long time, afterwards resumed by the minister Florida Blanca, and again abandoned for schemes more vast, but possibly not more useful. It is not by such a vacillating system, that the regeneration of an empire can be effected.

Leon, a city pleasantly situated, and of importance up to the period of the union of its crown to that of Castile, contains no more than fifteen hundred chimnies, divided into thirteen parishes, with nine convents. Its neighbourhood is, notwithstanding, tolerably fertile, and adorned with plantations. It has some manufactories of linen, which are not constantly employed throughout the year, and of which many have latterly been given up.

Salamanca, the second city of the kingdom of Leon, deserves more particular mention.

Desirous, from the reputation of this city, so much celebrated in the romances, and scientific history of Spain, to gratify my curiosity in seeing it, I made a journey on purpose during my first residence in Spain. The court was then at St. Ildefonso, which is twenty-seven great leagues from Salamanca.

Although the Spaniards, and even the Abbé Pons, complain of the depopulation of this part of Spain, it did not strike me in passing through it. For example, I noticed that in the neighbourhood of Arevalo twelve villages were discernible from one spot. The whole canton, notwithstanding it be arid and poor, is nevertheless fertile and tolerably well cultivated; the result of individual possessions not being so considerable as in other parts of Spain.

After passing Segovia, of which, as we proceed, we shall say something farther, I arrived at Santa Maria de Nieva, a town of six hundred chimnies, which possesses the singular privilege of having a bull-feast every year, frequented by all the amateurs of the sport in the neighbourhood.

From the eminence on which it is situated, a tolerably fine country is distinguished, of a vast extent, without any running streams, without trees, verdure, or country-houses, and

and which only presents one uniform tiresome aspect, if immense corn-field deserve that appellation.

After passing a wood of fir-trees, the land is naked, and perfectly flat. In spite of the drought to which it is subject, it is very well cultivated, even up to the gates of Arivalo, a town which formerly must have been a considerable city. Its massive gate leads to a bridge, whose solidity braves the violence of the floods, and seems to contend with time. This double monument has been deemed worthy of one of those pompous inscriptions of which the Spaniards are by no means niggard. It informs the passenger, that the communes for thirty leagues around contributed to the building of it. Within the walls of Arevalo one sees with disgust the remains of ancient columns, on which are constructed miserable huts and balconies, of wood half rotten. The clergy alone preserve their wealth in the midst of the wretchedness about them.

Beyond Arevalo, as far as Penaranda, nothing is seen but rich and well cultivated land. Its inhabitants, notwithstanding, display every symptom of indigence. Content, like the greater part of the inhabitants of the interior of Spain, with the enjoyment of the absolute necessaries of life, they pay no regard to its comforts. Cut off from communication with strangers, and a comparison of their modes with better, they seem to be destitute of either a desire for, or knowledge of, the pleasures of life. It never occurs to the individual, that he may improve his possessions. A garden, nay, even a kitchen-garden, is an object of luxury that their parsimony denies them. Idleness enforces privations, and the habitude of accommodating themselves to privations nourishes idleness. In this circle will they revolve till such time as roads, canals, and more easy modes of transport, shall demonstrate to them the advantages of commerce. Travellers, who judge of Spain from patterns such as this, are excusable in treating it with rigour.

One becomes somewhat reconciled with this canton on entering Penaranda, a pretty little town of about a thousand chimnies. It contains many architectural remains, which shew it to have been formerly a place of greater consideration.

Its inhabitants have a strong reliance on a miraculous image of the Virgin. Without its patronage, say they, "twenty times should we have sunk under our misfortunes." Sweet illusions, which modern philosophy has the cruelty of ridiculing, and which, on the contrary, it might be well to encourage for the comfort of the poor, where the constituted authorities possess the power of preventing the abuses of superstition! Certainly they are perfectly innocent; such illusions are even valuable, were nothing else the fruit of them, but nourishing patience and hope in the bosom of the wretched. The inhabitants of Penaranda, in common with most of the provinces of Spain, appeared to me to be in need of these resources. Loaded with taxes, they earn most hardly the little which they gain, so that their misery stifles their industry. Their lords, who frequently are ignorant even of the geographical position of their estates, abandon the administration of them to intendants, treasurers, and alcaaldas, who draw down maledictions on names, which might be revered upon closer knowledge of the persons who bear them.

I shall not quit Penaranda without observing that its inn is, perhaps, the most commodious, and the cleanliest of any in Spain. A matter unusual in this country too, I found the landlord complaisant, and some eatables in the house.

I afterwards traversed a district in which, I was assured there were droves of cows, whose male calves were without horns; this then appeared to me an idle tale; I give, however, more credit to it now that I understand Doctor Johnson, in his return from his journey to the Hebrides, found, at Auchinleck in Scotland, some cattle without horns; and that, in Norway, whole races of bulls are met with of this description, between Christiana and Frederickshall. When I understood that such were met with in England, and

and, after seeing in a country-house at Altona a bull of this description entirely without horns, and not apparently descending from any degenerate cast, as some travellers, who have met with such beasts, have imagined; I was led to conceive, that this singularity was not uncommon among the ancients; and did not consequently appear incredible to them, since Tacitus, speaking of the Germans, says, *ne armentis quidem bonos aut gloria frontis*; "their bulls have no honours but a hornless brow*."

Whether these animals without horns exist or not in the district of Penaranda, I learned that the labourers, at least, had some means of acquiring a competency; that the greatest part of the lands were held by them under the simple condition of rendering to the proprietor about a fourth part of the crop, themselves bearing the whole expence of the culture, gathering, &c. It is consolatory to find this class of men, so valuable in themselves, sometimes reap advantage, if not from the disinterestedness, at least, from the heedlessness of proprietors; but these examples are as unfrequent in Spain as elsewhere.

From Penaranda, after passing by Ventosa, a miserable village on an eminence, I arrived at Huerta, where I, for the first time, remarked a custom, in some particulars, worthy of imitation. It was in having a board fixed at the door of the inn, whereon was described by the alcalde, the manner in which the hostels should behave to travellers, the price to be charged for lodging, the food of their horses or mules, &c. Thus far all was reasonable, but the foresight of the prescription went farther; it forbid the hostels *keeping pigs and poultry, and suffering play at certain games in her house, receiving armed men, or women of light conduct.*

It is by similar incumbrances, by which much accommodation is lost, without serving morality, that Spain, for a long time, will feel the want of good inns, and remain a dread to foreigners.

On leaving Huerta, the towers of Salamanca are distinctly seen, and not lost sight of afterwards. At a certain distance, the position of the city on the banks of the Tormes is very picturesque; and, were the country somewhat more adorned, would put one in mind of Tours. Half way towards it, I passed through one of the vast pastures, called Valdios, not very frequent in Spain, but which are destitute of that beautiful verdure which is the finest ornament of country scenery. A great drove of cattle (all with horns) were there feeding in this meadow. I was now in one of the districts which supply the amphitheatres of Madrid and Valladolid. After having frequently witnessed their bloody combats, it was not without emotion, that I beheld myself surrounded by these fearful animals; but they ranged in freedom; no one provoked them; they had laid aside their ferocity. Nature has formed very few animals instinctively malevolent. Some become so, when dictated to by hunger or self-defence. Do men always wait for these powerful provocations before they manifest the rage of the irritated bull, or the fury of the hungry tiger?

On entering Salamanca, one passes at first through dirty, narrow, and ill-peopled streets. It then wears the appearance of the most wretched city in Europe; and we readily credit its population formerly so numerous, being reduced to two thousand eight hundred houses; but view with surprise, on advancing, its new square, equally remarkable for its cleanliness, and the regularity of its architecture. It is adorned by three rows of balconies, which are continued uninterruptedly; its ground floor is formed of

* In the spring of 1800, near Altona, I again met, not with the same bull which I had seen some years before, but several of his descendants, which had horns notwithstanding his being destitute of them himself; a phenomenon perhaps not uncommon.

ninety arches, within the arches are placed the likenesses of the most illustrious persons Spain can boast. On one side are seen, those of all the Kings of Castile, to the time of Charles III.; in the other those of all the best known Spanish heroes, such as Bernard del Carpio, Gonzulvo de Cordova, and Fernandes Cortez. The arches of the eastern side are yet empty, how soon will they be filled?

The cathedral of Salamanca, although built in the time of Leon X., is badly imagined; however the striking boldness of the nave, and the exactness with which its Gothic ornaments are finished, make it one of the most remarkable Gothic edifices in all Spain. When further we learn that Salamanca besides this cathedral has twenty-seven parish churches, twenty-five convents of men, and fourteen of women, one is no longer astonished at its poverty and want of inhabitants.

From an earlier period than that of the reign of Philip II., the fame of its university attracted students, not only from all parts of Spain and Portugal, but even from France, Italy, England, and Spanish America. The great vogue in which it was, has somewhat gone by, although from the new form it has received by the council of Castile, the university of Salamanca possesses at present sixty one chairs, and a college for the Hebrew, Greek, and Latin tongues; and notwithstanding it has even now some skilful professors, who are occupied in hunting in its last coverts the pretended philosophy of Aristotle.

Another establishment of more modern date than the university of Salamanca, and at present more celebrated, is that of the grand colleges, *colegios mayores*. In Spain there are seven places of education of this name, four of which in Salamanca alone.

They are all of them buildings which astonish by their stupendousness; the oldest that of St Bartolomeo has been recently rebuilt; and on account of its front and its principal court, claims the notice of architects: it contains a library rich in manuscripts, and several learned men have been educated in it; among others Alphonso Tostado, whose immense erudition, and prodigious fecundity, serve to this time for a proverb among the Spaniards*.

Among the crowd of sacred edifices which Salamanca contains, the church of the Dominicans, was pointed out to me as worthy of description, that of San Marco, and the front of the Augustines.

The first has a Gothic front, worked with great nicety, a spacious nave and richly decorated† chapels; but I looked in vain for the fine paintings I had heard so much vaunted. The platform of the choir is painted by Palomino in fresco. In his history of Spanish painters, Palomino has given some lessons on the fine arts. According to my conception, in his works at Salamanca, he does not appear to have joined example to precept.

Instead of master pieces of painting I was shown a magazine of relics. I was pathetically invited to advance my chaplet, but this characteristic of Spanish catholicism, I did not happen to be provided with. I was however obliged to pay my tribute of respect, in which I but imitated all the attendants, and to have refused which might have been dangerous; this consisted in kneeling before these venerated objects.

To enumerate all the sacred treasures that were exhibited to me would little entertain the reader; I shall therefore only mention the bible of the famous antipope, Bene-

* When desirous of representing the number of works of any author, the Spaniards say, " Ha escrito mas quo eso Tostado "—He has wrote more than that Tostado.

† In Roman catholic Churches, the places where the Priests read mass are called chapels, in large churches there are frequently several.

dict XIII. who was born in Spain and deposed by the council of Constance. Take care, said my conductor (who was a friar) that you do not confound him with a pope of the same name who was a Dominican; he was a true pope. The irony of Moliere will thus suit all countries: *You are a goldsmith Mr. Joffe.*

In the portal of the Augustins, I saw nothing but the ornaments with which it is loaded, that were remarkable. It fronts a castle or palace of the Duke of Alba, a part of whose domains is situated in the neighbourhood of Salamanca. These domains, these palaces, sadly feel the absence of their lords. This reflection is excited at every step you tread in Spain. So long as opulent proprietors cease to vivify by their presence their too extensive inheritances, at least occasionally, patriotic societies, manufactories, encouragements to agriculture, and a thousand other salutary plans, will be but useless palliating to the evils, which for two centuries continue to undermine the Spanish monarchy. This is not one of the smallest inconveniencies arising from the despotism of an individual. The monarch attracts about him, by his favours, all such as can add splendour to the throne, or put it in danger by a distant exhibition of power and pomp. Vanity requires, that all should shine for its advantage, and by its means, and mistrust is apprehensive of the lustre that is distant. This was the system of Richelieu, and this is the picture of all the kings of Spain from the time of Charles V. They have consolidated their authority at the expence of the prosperity of the state.

The remaining church which they boasted of, is the old college of the Jesuits given to a community of regular canons, under the name of the church of *San Marcos*. Except a magnificent portal of the Corinthian order it exhibits nothing curious. The old seminary of the Jesuits was consecrated, in 1778, to the education of thirty young ecclesiastics. The ceremony of their introduction is described in a picture by Bayeux, one of the most able scholars of Mengs.

Before I left Salamanca, I went to see an old Roman bridge of twenty-seven arches, which is at the end of the town, over the little river Tormes.

Seven or eight leagues from this city, and on the right bank of the Douro, is Zamora, which, notwithstanding its being situated in the ancient kingdom of Leon, has, for a long time back, been the seat of the military government of Old Castile; and is not a whit the richer for it.

Lastly, from fifteen to eighteen leagues, S.W. of Salamanca, and not far from the Douro, is a sort of arsenal, formerly in a flourishing state, and situated in a territory fit for all sorts of culture, at present it is in a wretched state, without population, and without industry. Roads almost impassable, from whichever side you proceed towards it, vestiges of ruined villages, and the worst inns in Spain, such are the attractions of Ciudad Rodrigo, and its environs.

This, I conceive, will be deemed sufficient to say of the kingdom of Leon, in order to prevent any one from undertaking an excursion to it. Let us now again enter the road from Burgos to Segovia.

Olmedo is separated from Valladolid by eight leagues of sandy soil. In all this distance there is no other verdure to be seen than that of a dull forest of pines, and heath.

Valdestillas is half way, a town consisting of two hundred and fifty houses. I lodged there in 1792, at a farmer's, whose pride of birth would have furnished matter for an excellent comedy. His nobility he told me was incontestible; he produced the proofs of it before me, in a sort of certificate, which his grandfather, removing from Biscay into this district, had obtained from the chancery of Valladolid; for these tribunals, besides other functions, have that of pronouncing on the validity of titles of nobility, and granting a consequent certificate, which is called *executoria*. In each of them even there

there is an apartment in which the principal business transacted is of this nature, and which apartments on this account are called *Salas de hijos d'algo*, (apartments of the sons of somebody,) words from which by corruption *hidalgo* is deduced, signifying noble. My *illustrious* innkeeper did not fail to inform me that at Valdestillas there was a score of inhabitants, as much hidalgos as himself, but they had not *such well authenticated certificates*. Notwithstanding all this, he was not above talking to me of the revenues proceeding from the lands of his master, which as well as the whole district produced abundance of wines. A *nobleman*, and have another *master* besides the king! Thus in Spain, as well as in other countries, vanity easily reunites itself to meanness. Such an event as I have described was necessary to engage me to mention such a place as Valdestillas.

Olmedo is seated upon an eminence, in the middle of a plain, which appears almost unbounded on every side, except to the north-east, in which direction are seen some barren hills. This city, which was formerly strong, is still partly enclosed by thick walls three quarters of a league in extent. It has very few inhabitants or manufactures, and its whole internal appearance announces decay. I have no where been more struck by symptoms of degradation and misery. Seven parishes and as many convents; some brick grounds and vineyards, and a few kitchen gardens under the ancient walls; these constitute all the riches of Olmedo.

From Olmedo you may go either to Madrid or Segovia, according as you take the right hand road or the left. If the former, after passing through seven or eight miserable villages, one arrives at San-Chidrian, one of the stages of the diligence, and at which in 1792 I found a tolerable inn. The road, which even at that time was very bad to San Chidrian, is afterwards most excellent as far as Madrid, that is to say, for a space of fifteen great leagues; but as far as Guadarama, it runs through one of the wildest countries in Europe, along the thick curtain shaggy with rocks, which separates Old Castile from the new. In this unpleasant journey, before you ascend the most steep part of these enormous mountains, you make a halt at a new inn, called *El Diverjorio de San Rafael*. Beyond is the village of Vellacastin, where the barrenness of the country increases, and rocks are more frequent. On the top of the mountains the immense plains of New Castile are distinguished; shortly after succeeds a turnpike, where travellers pay a toll for keeping the road in repair; descending then a long slope you reach Guadarama, where it finishes.

Madrid is but seven leagues from this place. The Escorial is in the road two leagues distant. St. Ildefonso is seven leagues off, at the foot of the mountains just passed, and on their opposite side, and which project considerably with great sinuosities towards the left. Nothing announces that Guadarama is so near the capital, and the two residencies of the court. To behold the distance from each other, and destitute state of the inns, one would imagine Madrid could be frequented by none but pilgrims and muleteers. But before we enter that city for a long stay, we will return to resume the road to Segovia, which we swerved from at Olmedo.

Segovia is eleven leagues from Olmedo. The country round this city is the most barren, poor, and depopulated of all Castile. We pass through some large towns, such as *Santa Maria de Niewi* and *Giusti*, which we have before noticed, and perceive the turrets of the castle of Segovia, and the steeple of the cathedral, at a considerable distance. The traveller suffers much from impatience before he arrives at this city; he has several circuits to make, with many painful and tedious efforts before he has climbed, as it were, up to the square of Segovia.

approaches, he sees to the right an old castle, built upon the summit of a steep rock; and to the left, he looks down on a valley watered by a little river from which it receives its verdure. Intent on the fine prospects by which he is surrounded, he forgets the desolate country he has journeyed over, and which on leaving Segovia he will meet with again.

This city was formerly famous on several accounts, and notwithstanding its dirtiness, and the small number of its inhabitants, is still not unworthy the attention of the traveller. Its principal edifices are the cathedral and the castle or *Alcazar*.

The cathedral is a mixture of the Gothic and Moorish architecture. The inside is very spacious and of majestic simplicity, and the great altar has been lately decorated with the finest Grenadian marble.

The Alcazar of Segovia, formerly the residence of the Gothic kings, is a well preserved edifice. Charles III. established in it a military school, for young gentlemen intended for the artillery, in which their education is most carefully attended to. This establishment is under the direction of the inspector-general of artillery.

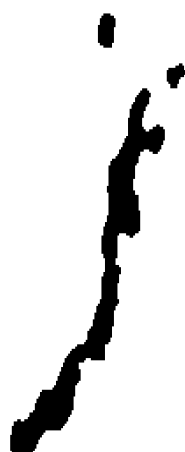
The Alcazar was for a long time made use of as a prison for the crews of the Barbary corsairs who fell into the hands of the Spaniards. It was impossible to see without compassion those robust Moors, condemned to a painful idleness, which was more irksome to them than their captivity, and devoting themselves to sedentary employments, for which nature seemed not to have designed their indignant arms. They were, however, never treated with rigour, and the court of Spain has restored them to their country, since the Spanish monarch has formed connexions with the Emperor of Morocco.

But nothing is more remarkable at Segovia than the aqueduct.

Segovia is built upon two hills, and the valley by which they are separated; a position which made it very difficult for a part of the citizens to be supplied with water. The difficulty was removed a considerable time back, according to the learned, in the reign of Trajan, by an aqueduct, which until this day is one of the most astonishing, and the best preserved, of the Roman works. It begins on a level with the rivulet it receives, and is at first supported by a single line of arches three feet high; it runs then to the summit of a hill on the other side of the city, and appears to become more elevated in proportion as the ground over which it is extended declines. At its highest part it has the appearance of a bridge boldly thrown over an abyss. It has two branches which form an angle, somewhat obtuse, relative to the city. It is at this angle that it becomes really awful. Two rows of arches rise majestically one above the other, and the spectator is struck with amazement comparing their slender base with their height. Its solidity, which has braved upwards of sixteen centuries, seems inexplicable on closely observing the simplicity of its construction. It is composed of square stones, placed one upon another, without any exterior appearance of cement, though we cannot now be certain whether they were really united without this aid, by being cut and placed with peculiar art, or whether the cement has been destroyed by time. One sees with his wretched houses reared against the pillars of the arcades, which seek in these ruins a support for their instability; in return for this benefit, degraded

forms the two branches. But what nation has not been guilty of like pro-
 ceedings? those of my countrymen, whose indignation may be excited by this, re-
 member that it is but lately that the amphitheatre at Nimes has been relieved from a
 similar outrage.





It is needless to observe that the houses near which this beneficent aqueduct passes, lay it under contribution on paying a certain duty, and that it was of the greatest utility to the houses, formerly much more numerous than at present, in which the wools of Segovia were washed and dyed. These wools are the most famous of all, and will form the subject of the following chapter.

CHAP. III.—*The Wools of Spain.—Attempts to naturalize them in France.—Details respecting the Mella.—Export of Spanish Wool—Manufactures of Guadalaxara and Segovia.—Travels of the Sheep.—Shearing and washing.*

THE best wools in Spain are those of the districts of Segovia, those of the country of Buytrago, seven or eight leagues east of Segovia, and those of Pedraza to the north, and stretching towards the Douro. The intercourse which I have had as well with the people of the country as with those of my countrymen *, who have reared Spanish sheep in France itself, for a period of years, have enabled me to collect detailed accounts respecting them, the most interesting of which I must beg excuse from light readers for inserting, as those of a different description will perhaps be pleased with seeing them.

In the first place, it is an almost universal opinion, although combated by several well informed Spaniards, that the wools of Spain do not so much owe their fineness and delicacy to the temperature of the climate, or the nature of the soil on which the sheep are bred, as the custom of driving the flocks to different parts of the country. But what proves to conviction that Spanish sheep yield not only very fine wool without their periodical journies, but even far from the climate and soil to which the quality of their valuable burthen is attributed, is the success of the flock which originally came from Spain, and which is under the care of Mr. Daubenton, as well as that which I was employed on the part of Louis XVI. to obtain from His Catholic Majesty in 1785, for the park of Rambouillet; both which have constantly, from the period of their introduction up to the present time, afforded wool, which connoisseurs have been unable to distinguish from that of the fleeces sheared in Spain.

The flock of Rambouillet suffered, but in a different manner, from the change of climate and food. Of three hundred and sixty which I forwarded from Spain, nearly sixty perished on the road, notwithstanding the Spanish shepherds, who had the care of them, drove them very gently, and notwithstanding they were wintered in the heaths of Bourdeaux, for the purpose of accustoming them by degrees to the climate of France; but this increase of mortality is the ordinary effect of emigrations from the south to the north, and men are even less exempt from it than animals.

In the first year of the removal of the Rambouillet flock forty perished; this was attributed to the scab which shewed itself soon after its arrival. The loss has each year

* In this number I must not in silence pass by M. Leblanc, an agriculturist at Marcuil le Port, near Epernay, a Frenchman who has signalized himself by the longest series of success in his treatment of sheep, and who has had the charge of forty five from Rambouillet; M. Cramayel as well, who, at his estate of that name, has attended very much to this species of industry; M. Chabert, one of the most skilful persons of all Europe in the veterinary science, who at one of his farms at Maisons, near Charenton, keeps a flock of Spanish sheep, which refute all the objections of scepticism and malevolence; but above all, those inestimable members of the commission of agriculture and arts, in the number of which I owe particular thanks to Mr. Gilbert, who had the particular superintendence of the Rambouillet flock, for his intelligence, zeal, and civility. Mr. Gilbert was a man of excellent disposition, and a good citizen; unfortunately for the arts, and for his friends, by whom he is much respected, he died last year. To the member above noticed may be added M. Chemilly.

diminished upon that of the foregoing, if the last be excepted, in which nearly a score of the flock has perished; but this mortality must be attributed to other causes, since it affected nearly at the same time almost all the flocks of the country, and with a greater proportionate loss.

The Rambouillet flock, so well preserved, has required no other attention than what every intelligent farmer, stimulated by interest, can afford. At first it was kept like those of Spain, constantly in the open air. The influence of a change of climate then began to be distinguishable. These animals, withdrawn from a warmer temperature, felt the effects of the cold, the wind, and the rain, which their close and oily fleece imbibed, it is true, with difficulty, but was long in getting rid of. Without continuing any longer the experiment, their keepers hastened to profit by what they learned, and inclosed the flock in large covered folds well aired. They had reason for congratulating themselves upon the change. Some lambs died of cold in the severe winter of 1794-1795, even in these pens. This is the consequence of a circumstance in which Spain has an advantage over France, and which cannot be shared by the latter. In Spain the lambs are fallen in the month of October, whereas in our climates they fall not before January. But nothing can be argued upon an extremity of cold which does not occur more than four or five times in a century.

The change of food has not tended to deteriorate either the Rambouillet flock, or those which have proceeded from it. The soil of the districts where the Spanish sheep feed, as well in Castile as in Estremadura, is in general dry and stony; the grass there is fine and short. It might be difficult to find a situation where the climate and herbage differed more from those of Spain, than the district of Rambouillet. The greater part of its park is covered with wood: its soil is almost every where argillaceous, clammy, humid, and cold. It was impossible to have begun under more vexatious circumstances; but the happy results of this first trial have falsified the predictions of all the cultivators of the country, and have proved that Spanish sheep may be naturalized upon every soil. It is known that where attempts for that purpose have been made in Saxony, in the duchy of Wirtemberg, in Denmark, and in Sweden*, they have not degenerated; but it is in France only that these experiments have been followed up in so fortunate and general a manner, as to forebode a speedy national benefit from the acquisition of Spanish sheep.

For some years back success has crowned all the experiments of this description made with ewes and rams†, from the sales which government annually makes at Rambouillet. At these the animals have always been sold very dear, as well as their fleece; and their

* Of this I have been convinced either from seeing them, or from creditable testimony, during my residence in these two kingdoms. At Fredericksburg, a castle of the King of Denmark, I saw a flock of the Spanish race which, down to the fourth generation, had not degenerated. It is true, this flock was selected in Spain itself by a Dane, well versed in every thing relative to agriculture and the veterinary art, and is attended to by himself with as much care as the best Spanish shepherd could do; this is Mr. Nilsen, inspector of the breeds of the King of Denmark, and one of his most useful subjects. In Sweden I have also been assured, that some proprietors of lands possess flocks which they have had for years, and which prosper with nearly equal success.

† Except this year, in which a taste for simplicity, the offspring of circumstances, a necessity of economy, and other causes more afflicting and less transitory, have sensibly lessened the price of the sheep, as well as their wool, for which the dealers offered no more than 10*d.* English in the grease, whereas in 1792 it sold at 8 *livres* 10 *sous* (or 7 shillings and 1*d.*), while our common wool fetched 30 *sous* (1*d.*). As early as 1795, the dealers had combined to give no more than 100 *sous* (or 5*d.* English); and one sees with regret, that the personal advantage of the dealers in Spanish wool may possibly prove an obstacle to the entire denization of Spanish sheep, more difficult to surmount in itself than all those of a physical nature.

excessive price is a certain guarantee of care for their preservation. Proofs can be adduced among all the intelligent proprietors who have devoted themselves to this kind of industry; a pacific victory, much more valuable than any acquisition which could result from our military successes in Spain; a victory which has been increased by our treaty of peace with that power, that secures us an additional flock of those precious animals, the export of which is so rigidly prohibited by the government *. The only measure which can preserve to France the possession of these advantages has at last been definitively decided on. It has now been determined that the sheep of the Rambouillet flock shall be freely sold at high prices. Every other means would have been ineffectual, for Frenchmen are more the slaves of custom than is imagined; and the country people above all are repugnant to all innovation. Rams and ewes from Spain, gratuitously distributed as they were at first, would infallibly have perished in the hands of ignorant and prejudiced men, for want of care. These animals have nothing engaging at first sight. Their dirty, close, and curled fleece, their small stature, their shape, present nothing, in the eyes of the simple inhabitants of the country, of what appears to them to characterize the beauty of sheep. The mode of selling them by auction was conceived the most certain of all, on account of its dispersing these chosen animals among connoisseurs, and making self-interest an inducement to the care of them. As to interest, the worst informed grazier, however obstinate he may be, must soon be convinced that he will find it in adopting the Spanish breed, whether pure or crossed. Sheep of either of these descriptions ask no more care than what the common ones of the country require, to be preserved healthy, and in good condition. The same climate, the same soil, the same food, serve for one as well as the other; they exact only a little more cleanliness, on account of the greater closeness of their fleece, and its being more oily; and yet the wool of them sells for almost double the price of that of the other, and the fleece is as heavy again. It is well known that the common weight of the fleece of one of our sheep is from three to four pounds†; that of the Spanish breed, whether pure or crossed, is seven or eight. Some well authenticated examples prove the extreme difference between the weight of the fleeces of our sheep and that of the Spanish breed. At his last shearing M. Hamerville, of the neighbourhood of Bourges, met with a fleece in his Spanish flock which weighed eleven pounds and a half; and this year, at Maisons, near Charenton, I kept one myself which weighed nearly twelve pounds; and yet it was not from a sheep purely Spanish, but from a breed of the third cross. The proprietor of this flock has even had two rams of an unmixed breed, which for three years together yielded thirteen or fourteen pounds of the finest wool, possessing, if not a perfectly equal fineness, at least all the elasticity, and every other good quality of Spanish wool.

A double profit is certainly thus afforded to the farmers who renounce their prejudices. There can be no reply to such arguments.

There are few departments into which this Spanish breed has not been introduced. Since their obtaining a high price they succeed every where, on account of their value

* Divers obstacles have retarded for three years the completion of that article of the treaty of Basle, by which the King of Spain allows the exportation to France of six thousand sheep in the course of six years. It was not till 1798 that Mr. Gilbert was dispatched to be present at the purchase and selection of a part of the sheep stipulated for. He sunk under the fatigues of this voyage, as toilsome as it was useful. Nothing now remains but to follow the road he had chalked out. I learn that a society, authorized by government, has recently taken upon itself to export, at its own expence, four thousand Spanish sheep, part of those which the treaty of Basle guaranteed to us.

† I do not here include certain districts where it is well known sheep of a very poor description yield from ten to twelve pounds of wool.

insuring those cares which animals removed from their native fields imperiously demand, of whatever species they may be. That part of France whose climate and pastures appear to be most congenial to Spanish sheep, (Roussillon), is precisely that in which there are none*; doubtless because its inhabitants are not aware of the profit they bring. Experience and time perhaps will teach them better.

But it will be asked, do these transplanted sheep, do their descendants of the pure race yield a wool equally fine as in their native country? In order to answer this question faithfully which Spaniards may propose in spite, and Frenchmen with distrust, we will frankly confess that our government, twelve years ago, caused Van Robais, of Abbeville, to manufacture the wool of a small flock of the Spanish breed which was at the veterinary school; that the cloth when made was as handsome and fine as could be, yet did not possess altogether the softness of Spanish wool. This experiment is perhaps the least favourable one of this description which has yet been made, since from every other it has been demonstrated that if the French wool is not altogether so soft as that of Spain, it is yet equally fine, and has increased somewhat in length, without losing its principal quality, and this length renders it very fit for the warp. To sum all, the samples preserved annually since the arrival of the Rambouillet flock, are sufficient to satisfy the most incredulous, that in the course of fifteen years it has experienced no change whatever.

Nor let it be said that fifteen years are insufficient for determining that the wool of the Spanish flocks transplanted into France will not in the end degenerate. For if a degeneracy be to take place, the first appearance of it would have shewn itself after such an interval. Moreover, the flock of M. Daubenton destroys all doubt, since it has maintained itself in its pristine purity for more than thirty years upon the most ungrateful soil; and this inestimable agriculturist has published certificates of our most celebrated manufacturers, which attest that having employed without distinction wool coming direct from Spain, and that from his flock, they had *absolutely found no difference whatsoever*. M. Leblanc, of Marcuil le Port, assured me, at the close of 1796, that for ten years that he had manufactured the wool from the unmixed Spanish breed, descended from that of Rambouillet, the workmen he employs distinguish nothing more between this and that sent from Spain, than that the latter is in a trifling degree stouter. And let us as we proceed remark, that this very slight inferiority of softness in the wool, is perhaps the only consequence resulting from the change of climate, this quality being principally ascribable to the great transpiration excited by the temperature of Spain, and which generates the very unctuous oil with which the wool of the sheep is impregnated in that country.

Moreover, it is not those sheep brought from Spain, or deduced from purely Spanish breed alone, which give these results. Those which proceed from the crosses with the French breed at the fourth generation, and even sometimes earlier, produce as fine wool as such as are entirely of the Spanish breed, provided the males which are conceived of the mixed breed be either kept apart or spayed, and the female crosses be employed with rams of the pure race only, for it is demonstrated that the ram has influence double that of the ewe upon the produce of propagation; provided further that these delicate animals be not confined to narrow, low, or close pens; and, lastly, that they be intrusted to vigilant and intelligent shepherds, such as that of M. Chabert, at Maisons, who affords a model deserving of imitation in this respect. It seems, be whatever part of France it will in which sheep are thus taken care of, and thus crossed, the

* This was the case at least in 1797.

results are the same. Government for some time back maintained a flock at Secaux, purposely designed for comparative experiments upon the crossing of rams of the pure Spanish breed, with sheep of the different departments. But these experiments have not yet been sufficiently numerous to serve as a basis for positive assertions. All that can be positively affirmed is, that the Spanish breed crossed with sheep of the coarsest wool, yield at the latest at the fourth generation produce equal to the pure race; that if the pure breed be coupled with large sheep of a great fleece, the produce is the longer in arriving at the desired degree of purity, but at length is better furnished with wool; and that if it be crossed with sheep of fine wool, such as those of Roussillon, Sologne, and Berry, superfine fleeces are sooner produced, but are not so heavy.

Thus it is sufficiently evident, that the famous quality of Spanish wool does not depend exclusively on the soil or climate of that country, no more than that the wandering sheep, called *Tras Humantes*, or *Ganado Merino*, receive the benefit which is ascribed from their travelling. The Spaniards have no occasion to seek the proof of this second truth in our fields, they are themselves in possession of it. It is beyond dispute, that in Estremadura there are flocks which are never driven to any other place, the wool of which does not perceptibly vary from those which are kept travelling. It is equally true, that, in the neighbourhood of Segovia, there are small flocks which never leave it, and whose wool is as beautiful as that of those which do. I have been assured by the people of this district, that of the twenty thousand arrobes of fine wool grown there, near a third was produced by the stationary flocks*.

To what then is the practice of driving these millions of sheep all over Spain to be attributed? To what but that which tends to cause, to propagate, and consolidate abuses, the personal interest of the powerful, which has engendered the ruinous privileges of the Mesta in Spain.

This is a company of great proprietors of flocks, composed of wealthy religious communities, grandees of Spain, and opulent individuals, who find their account in feeding their sheep at the expence of the public in every season of the year; and who, by impolitic laws and regulations, have given sanction to a custom which necessity first established.

The mountains of Soria and Segovia, condemned to sterility by the climate, soil, and the steepness of their sides, were formerly the asylum of some neighbouring flocks. At the approach of winter, their temperature was no longer tolerable. These delicate animals sought, in the circumjacent plains a milder air. Their masters soon changed this permission into a right, and formed a company, which was augmented by the addition of others, who, having acquired flocks, were desirous of enjoying the same privileges. The theatre was extended in proportion as the actors became more numerous; and, by degrees, the periodical excursions of the flocks were extended to the plains of Estremadura, where the climate was more temperate, and pasturage in plenty. When the abuse began to appear intolerable, it had already taken deep root, and affected the interest of the most powerful citizens. The consequence is, that, for more than a century, there has been a continued struggle between the company of the Mesta, on one part, and,

* In the sixteenth century the travelling sheep were estimated at seven millions; under Philip III. the number was diminished to two millions and a half. Ustariz, who wrote at the beginning of this century, made it amount to four millions. The general opinion is, that at present it does not exceed five millions. If to this number the eight millions of stationary sheep be added, it will make nearly thirteen millions of animals. all managed contrary to the true interests of Spain, for the advantage of a few individuals. For the proprietors of stationary flocks also have privileges, which greatly resemble those of the members of the Mesta.

on the other, the Estremenos, or inhabitants of Estremadura, who have all friends to the public good on their side.

In fact, how can they view with patience the millions of sheep, *tras humantes*, which fall from the mountains of Old Castile upon the plains of Estremadura and Andalusia in the month of October, returning in the month of May; and which, in coming and going, feed along the whole of the road in every commune; while the ordonnances of the Mesta allow them a breadth of road of ninety varas (about eighty yards), and, while the pastures which await them are let at a moderate price, an augmentation of which has been for a long time solicited in vain. In short, this unfortunate Estremadura, which is fifty leagues long by forty wide, and which might furnish subsistence for two millions of people, scarcely contains a hundred thousand houses; and this want of population can be attributed to nothing but the scourge of the Mesta; since the provinces which are not subject to such dreadful privileges, such as Galicia, the Asturias, Biscay, and the mountainous country of Burgos are well peopled.

This crying abuse has been attacked by many enlightened Spaniards, as well of our time as of former ages; by Leruela, Usturiz, Arriquabar, even by that humorous philosopher Cervantes, who, under the veil of pleasantry, has given such wise lessons to mankind, and to his fellow-citizens, and much more recently by Don Antonio Ponz, by Count Campomanes, &c. &c. Their voice has been "a voice crying in the wilderness." This abuse does not even depend on the credit of powerful people alone, it is a consequence of idleness, and misconceived interest, which prefers the grazing of sheep to agriculture. Within a century wool has doubled in price, whereas grain, the culture of which is so toilsome, and so precarious, has very little increased in value. Ten thousand head of sheep will yield, *communibus annis*, two thousand arrobes, or five hundred pounds of wool, at the rate of five pounds per fleece. And rating the arrobe at no more than 100 rial, or 25 livres Tournois, these ten thousand sheep will produce about 50,000 francs, or £2000 sterling; from which, it is true, the cost of their food is to be deducted, the expences of their travelling, the rent of their winter grazing, the wages of the shepherds, and other incident expences; but which yet leaves a net profit of sufficient amount to render this species of property highly valuable.

As to the practice of driving the sheep to different pastures, besides its being sanctioned by law, and long custom, it is not only excusable, but rendered necessary by circumstances. Either the number of sheep must be diminished, or some must travel a-field. Those which, during summer, find pasture on the mountains of Soria, Cuenca, Segovia, and Buytrago would die of hunger, if left there in winter; and where can they find a better asylum than in Estremadura, a province badly peopled, not opulent, and whose pastures are its only reliance? I am well aware that this argument may be looked upon as begging a question; but, up to this time, government has been willing to look upon it as conclusive.

Others excuse the *mesta* from that long endurance which perpetuates a system. He who reasons thus would be scrupulous, however despotic his nature, of infringing on the property of the proprietors of flocks by violent reforms. And how is it to be expected, that they should be prevailed upon to renounce voluntarily a benefit, the management of which is neither very complicated, nor very expensive; the produce of which (nearly certain) finds an almost inexhaustible demand, from the avidity with which Spanish wools have hitherto been bought by manufacturing nations? Besides, the exchequer is interested in the maintenance of this branch of trade; for the duties which are paid on the export of wool, form an important branch of its revenue. Latterly it has amounted to from twenty-seven to twenty-eight millions of rials. A government will

will scarcely consent to dry up a source of such benefit without having a ready substitute.

There is a slower, but a more certain mode of obliging Spain, in spite of herself, to diminish this innumerable host of animals, which devour her, if I may use that expression in speaking of an animal, whose name alone imparts ideas of innocence and peace. It is that which France is about adopting whose success may induce other nations to follow her example, which have hitherto imagined that they were obliged to have recourse to Spain for wool. Then will the covetous and idle proprietors of these immense flocks feel themselves obliged to employ their capitals in a different manner, in one less lucrative to themselves, but more advantageous to their country. Fortunate will it be for Spain, if, calculating on the consequences of this species of revolution, she prepare her territory beforehand for its new destination, by increasing and perfecting her roads, her canals, and the other modes of vivification in which she is deficient.

In the present state of things, that in which they are likely to continue for a long time, wool forms one of the principal staples of Spain. Before the war of 1793, the common exportation at Bilboa was annually from twenty to twenty-two thousand bales, of from two hundred to two hundred and fifty pound weight; and from St. Andero about a third part of that quantity. These are the two ports at which incomparatively the largest part of the wool of northern Spain is shipped. If we are to judge from the year 1792, England is the country which receives the most, and Holland the next largest quantity, France only standing in succession. That year there was exported,

	From Bilboa,	From St. Andero,
for England, - -	16,176 bales,	- 4,678 bales,
for Holland, - -	6,180 -	- 1,909
for Rouen, - -	1,186 -	- 1,200
for Ostend, - -	654	
for Hamburg, -	356 ..	

But the year 1792 ought not to serve as a guide. At that epoch, the commerce of France already began to feel the effects of the Revolution, and the war which began in the month of May. Commonly the export to France amounted to nearly four times as much, or about eleven or twelve thousand bales, that is to say, more than half the quantity exported from the northern harbours. If these bales be valued at no more than 1,400 rials per hundred, (the average price of 1792, when superfine *Leonefe* was worth 18 to 1900 rials, and the commonest 1100 to 1150,) and the bale be rated at two hundred; it follows, that the common annual importation of France, before the Revolution, amounted to upwards of 32,000,000 rials*.

Our manufactories of Louviers, Elbœuf, Rheims, Abbeville, and Sedan, particularly that of Duret, could not do without Spanish wool; the wool of Champagne and Berry, of which their consumption is considerable, serving only when used by themselves for common cloths, a part of it alone being used in the others. Some cloths, cassimires for example, are wove purely of Leonefe, and admit of no admixture whatever. If, then, France should succeed in extending the propagation of the Spanish breed so far as to render unnecessary the importation of wool, it will be freed from an annual contribution

* As in this computation every thing is taken at the lowest, since superfine Leonefe is the quality of wool, of which the largest quantity is exported, and many of the bales weigh two hundred and fifty pounds, it may be deemed not too much to add a fourth part to this sum of thirty-two millions, which will agree with the account of the balance of trade, furnished by Mr. Flandrin; by which it appears, that, in 1782, we received Spanish wool to the amount of 13,600,000 livres. See *Flandrin sur l'Education des Moutons*, p. 23.

of 12 to 13 millions. Let us hope, that the birth of public spirit among the inhabitants of the country will find in this a sufficient incentive for directing the attention of agriculturists to this improvement, separate from the immediate advantage arising to themselves from a branch of industry, which, it is true, exacts care, but which requires few expensive advances; which, without detracting any thing from the value of the land, exhibits a means of reaping a crop, which does not grow from its bosom, and of which crop almost the whole is profit. Let us now turn to what relates to Spanish wools, where Spain alone is concerned.

Of them she is capable of exporting 32 to 33,000 bales, of from 200 to 250 pounds weight. The exportation of 1792, through the ports of Bilboa and St. Andero, was to that amount, without including five or six hundred bales of lamb's wool in the grease; for now almost all the Spanish wools are washed before exported. Before the increase of the duties on wools in the grease, which took place in 1787, almost all the lamb's wool of the Leoneſe, Segovian, and *Sorius Cuballeros* shearings were shipped in the grease, and amounted to about 1800 to 2000 bales, of eleven or twelve arrobes each, (297 to 324 pounds).

For these thirty years back, the necessities of the exchequer, and the persuasion that foreign nations could not do without her wool, however high its price, have caused a successive augmentation of the export duties.

Between 1766 and 1787, these duties were increased from 42 rials 12 maravedies per arrobe for cleaned wool to 66 rials 28 maravedies, and from 21 rials 6 marav. per arrobe, for wool in the grease, to 50 rials 4 maravedies.

In spite of these successive augmentations, the exportation of wool has rather increased than diminished. It is one, but not the principal cause, of the dearness of cloth, the chief being the greater price of the staple itself. Within these thirty years the value of wool in the grease has increased, the superfine Leoneſe from 75 to 80 rials per arrobe; and those of an inferior quality from 100 to 120 rials: notwithstanding this, the demand of the manufacturing nations has not discontinued; on the contrary, at the conclusion of the war which began to convulse Europe in 1792, the exportation appeared to be greater. It is at Madrid, although at so considerable a distance from the centre of the fine wool country, that the most extensive dealings in this article take place. In this capital are four or five houses employed in it. They buy up the shearings of the flocks in advance of several years together, of those proprietors who possess the best *, but it is not every Spanish house that possesses either the necessary capital, or the courage to enter into such speculations; and by far the greater profit is left to the adventurers of the commercial nations. The French, the English, the Dutch, fetch Segovian and Leoneſe wool from Bilboa and St. Andero, and do not even leave the Spaniards a commission upon the sales, buying the wool, when in the custody of the shepherd, and washing it themselves. The Dutch, in particular, purchase, in this manner, a very large proportion; not that they themselves manufacture the whole of the wool they export, but to enable them to supply those who resort to them under a certainty of being accommodated to their liking. They pay in money for the wool which they have to shear, and give long credits to those who apply to them to select what may suit. The manufacturers of Viviers and Aix la Chapelle have endeavoured, in vain, to lay aside their interference, and supply themselves directly from Spain; in the attempt they subjected them-

* The Duke de l'Infantado, for example, made a bargain in 1791, by which he disposed of the produce of his shearings for eight years to come, for the sum of 100,000 piastres. The company of the Gremios, in particular, speculate considerably in this article. On the return of peace, it possessed nine hundred bales, which it found great difficulty in disposing of.

felves to the greatest inconvenience. They were displeased with the wools which were shipped to them. They had disputes about the price, and the credit, which they insisted on having extended to fifteen months, and finally ended in refusing their old plan.

Notwithstanding all the statements we have collected, it is difficult to ascertain with nicety the quantity of fine wool annually shipped from the ports of Spain, including Seville, at which that of the southern provinces is exported. In 1790 I was assured that it exported to the amount of 60 millions value in rials. The following calculation may serve to show that this quantity is even less than the truth.

Be it allowed, that no more be shipped from Bilboa, than 22,000 bales, nor than 8,000 from St. Andero: to them let the 4,500 bales be added, which are exported by Seville; collectively these will form a total of 34,500 bales. Those rated at no more than 200 lbs. per bale, yield an amount of 6,900,000 lbs. which at the low price of 10 rials per lb. give the sum of 69 millions of rials. In this computation, every thing is taken at a low rate, particularly the price of the pound of wool, since in 1792 superfine Leonele obtained 1886 rials, and common 1150 rials the hundred weight, consequently the former cost more than 18, and the latter more than 11 rials per lb. We shall therefore keep much within compass in estimating the value of the annual exports of wool at 80 millions of rials at least*. Will France continue to be one of the principal importers, and take annually, as before the rupture between the two powers, her 10,000 bales? Doubtless; for should the plan she has adopted become established, should certain interested views no longer oppose its progress, should the calculations of avarice among the French be stifled by a love for their country, prejudice will yet for a long time prevail over reason, and custom over interest among the farmers. Yet should this change universally prevail, would Spain be the loser in proportion to the acquisition of France? Certainly not. This revolution in her political economy, produced by degrees, would necessarily conduce to improvement, and the adoption of regenerating plans. Proprietors, pampered hitherto from the easy manner of their acquiring wealth, and some rich individuals would suffer without doubt, but the mass of the nation could not fail to gain by it.

Spaniards, allies, look not then with a jealous eye on the fortunate experiments we are making, to do without your wool! As yet we are far off our aim, and years must roll before it can be effected. Continue to trust to that versatility, of which the revolution has not cured us. Continue to trust to the strength of root, which prejudice has taken in the country; and if ultimately you should lose us, as purchasers, reflect that the loss, with which you are threatened, does not create concern among those of your citizens, who are the best informed on your real interests†. Two of the most enlightened

* A more nice computation than what is here exhibited by Mr. Bourgoanne might have been adopted by him. In the course of the work he lays before the reader, the statements made by Lauren, the Spanish minister in 1789, by which it appears, that the duties collected on the wool in the year 1787 amounted to 27,449,746 rials, and a few pages past he mentions that the duty per arroba was for wool washed from the greafe 60 rial. 28 maravedies. Consequently, separate from what might be smuggled out; and taking for granted, (which would not be entirely the case,) that none was exported but what paid the superior duty, the entire quantity will still have been upwards of 400,000 arrobes which at 1600 rials per 100lbs. will give 160,000,000 of rials, or near 2,000,000*l.* sterling. However large this may appear, it is less than half the value of her exports in this article since 1787. *Translator.*

† I am sorry that a Spaniard whose opinions are worthy of respect should think differently. I have been told that a French land owner to whom a detachment of the Rambouillet flock had been forwarded under the guidance of one of the Spanish shepherds, having brought this man to Paris after the lapse of a year, and thinking it a duty to present him to his ambassador, was very coolly received and obtained for answer to the

lightened ministers of this century, Campillo, under Philip V., and La Ensenada, under Ferdinand VI., considered your immense export of wool, as one of the greatest obstacles to your industry; for as they observed, the people who receive it, return it manufactured, and sell it back at a high price; while those of an inferior quality, which remained in Spain, are manufactured there at a great expence; your manufacturers indemnifying themselves, by the dearneis at which they sell their goods, for the small quantity of wool left them to make into cloth. Finally, many well informed persons among you imagine, that by our concurrence towards causing a diminution of your too numerous flocks, we rather acquire a claim to your gratitude, than merit your resentment.

Let it not, however, be conceived that Spain does not draw some advantage, even at present from her wools, in a manufacturing point of view. For a long time all low wools are worked up at home for the cloathing of the troops, and the common people; and the exportation of them is forbidden.

By much the greater part of the sheep, which furnish this kind of wool, are black, and the cloth is left of the colour of the wool. Hence the great number of brown cloaks, which add to the sad and dirty appearance of the inhabitants of the country, particularly of the two Castiles. There is as well wool of a secondary quality, such as that of Valencia, the export of which is not forbidden, which is employed in the French manufactories in Languedoc, but which for the most part is worked up in the country, where it is grown. Fine wool also is used in several districts of Spain with great success, and particularly in the manufactory of Guadalaxara. Whimsical occurrence! its existence is due to two foreigners, who made a rapid fortune in Spain.

It was Cardinal Alberoni, who founded this manufactory in 1718, and gave the management of it to Ripperda. At first cloths of a second quality only were made here, notwithstanding wool from the best districts was used. Under Charles III. the manufactory of San Fernando, at which superfine cloths only were made, was removed to Guadalaxara. Guadalaxara then had two manufactories of fine cloth.

This establishment in 1783, was one of the most complete that can be conceived. It had within itself every thing necessary for perfecting the manufacture of cloth, and all the instruments and tools which are used in it were made upon the spot. It had eighty looms for cloths of the first quality, properly called San Ferneandos; one hundred for those of second quality, and five hundred and six for serges, by means of which they hoped in time to do without recourse to England, to whom, for the single article of woollen cloths Spain annually pays 2,000,000*l*. These looms, collectively distributed in two buildings, gave work to 3825 persons, all paid by the King, without reckoning a much larger number, dispersed among the fields of La Mancha, and the Castiles, and employed in spinning the wool designed for Guadalaxara. Except in what regarded economy, the want of which has been repaired, it would be difficult to meet anywhere with a manufactory better organized. Guadalaxara consequently offers a striking contrast with the towns about it. I did not observe one beggar, one idle person among the 15 to 16,000 inhabitants, of which it is composed. Manufactories, and particularly that of cloth, have many minute operations, of which children, old men, and infirm people, are capable. They are a supplement of labour, furnished by the arts for the advantage of feeble or suffering humanity, to nature condemned without to languish, unserviceable itself, and burthensome to others.

the thanks he gave him as representative of the court which had bestowed this benefit on France: "*No thanks to me, Sir; for if I had been consulted, never should a sheep of our country have gone from Spain to France*" I did not in this answer recognize M. D'Arandu. He was from habit more alive to the true interests of his country; and above any paltry national jealousy.

These manufactures have experienced many changes since 1783, according to who had the superintendence of them. Valligio, one of the last superintendants, made some useful although expensive additions to them. His successor, Don Santiago Romero, pays less regard to shew than utility. He has used means to secure a sale for the cloths, and to cause them to be manufactured so as to suit the taste of the consumers. The Spaniards already vie with Abbeville in their own esteem, and do not greatly flatter themselves. But will it be believed, although they have their wool from 25 to 30 per cent. cheaper than us; although there be a sufficient population about these manufactories; although there be no want either of wood or water, their cloths were notwithstanding, at least previous to the war, even dearer than ours*?

It must however be confessed, and unprejudiced Spaniards allow, that their manufacturers have yet somewhat to learn in dyeing and fulling their cloths. But when, as is the case with them, the materials are not wanting, a few hands, skilled in those branches, are sufficient to perfect many manufactories. Government is watchful to procure them. All these arts of seduction, which rival states mutually endeavour to make abortive, but which they tacitly agree in overlooking, have been employed by the court of Madrid to decoy such workmen, and skilful artists, as are still wanting to the national manufactures, from England as well as France. Towards the end of 1784, I discovered that a manufacturer of one of our towns, whom I shall not be so indiscreet as to mention, suffered himself to be seduced by the Spanish government, which offered him 160,000 piastres towards establishing a manufactory of cloth in Old Castile, and for bringing a hundred families from his country for the purpose of working it. No doubt the project was unsuccessful, as upon my second journey into that country I could find no trace of it. About the same time two of our artists (whose names I shall mention with pleasure) *Quatremire d'Isjonval* of the Academy of Sciences, and *Chardron* a manufacturer at Sedau, received similar propositions, and rejected them. I have since heard that similar attempts have been made in England, and not without success.

The Spaniards have, however, now among them some skilful persons, capable of giving their cloths the highest degree of perfection. Such is *Don Gregorio Garcia*, who has the direction of that manufactory, established by the Minister *Lerena* at Valdemoro, the place of his birth, situated between Madrid and Aranguez, and one of his pupils, *Don Pedro Ciufta*, a manufacturer at Segovia.

Guadalaxara is the only place in Spain, where the famous Vigonian wool is manufactured, the precious produce of Peru, brought to Spain by the way of Buenos Ayres, and which is met with in no other country. In France they have endeavoured to manufacture this wool, and those who have compared the cloth with the Spanish, agree that the French has better face, but theirs a greater consistency, either because the Spanish workmen understand the manufacturing of it better than the French, or because the best qualities of wool are reserved for their own use. Very few cloths, however, of this description of wool are made even among the Spaniards themselves, nor is there a possibility of getting them, without their being ordered several months beforehand. Some are worked on account of the King, who makes presents of them to different Sovereigns. In 1782 Charles III. sent 20 pieces to the Grand Segnior, on the occasion of a treaty

* Charles IV., who visited the manufactories in 1791, found there 300 looms for fine cloths of first and second qualities, and 350 for serges. They afforded employment to 24,000 persons within and without the city, and manufactured cloths annually to the amount of from 13 to 14 millions of rials. The finest and dearest cloths on account of their colour, but of the second quality, sold at 84 rials the vara; the superfine San Fernandos at 94; those of Brihuega at 74 and serges at 13. The vara compared with the French ell, is as 5 is to 7.

concluded between him and the Porte. It was observed at the time, that Spain would not be sorry to give the Turks a taste for their cloths. But is it likely that Spain should attempt to rival nations, who, in possession of long continued trade, an almost insurmountable bar to success in itself, have in addition an advantage over her in their superior knowledge in the art of manufacturing? Will she not deem it more prudent to labour beforehand at answering from her looms the demands of two-and-twenty millions of men subject to her sway; but she knows herself to be yet far distant from such a state of prosperity. It is not by the methods tried in 1783 that she will make any progress towards it. The director of the royal manufactories could then pitch upon no expedient to get rid of a stock of cloth, of about 200,000 piastras value, without loss to the concern, than by obtaining a decree, forbidding the exportation of all foreign cloths to South America. This decree drew upon the government numerous reclamations on the part of England and France, as well as those Spanish merchants who had large stocks of foreign cloths. The edict was modified. It could not fail of being nugatory, from the necessity that existed of rendering it so, and necessity is ever fertile in fraudulent resources.

On the return of peace, the manufactures of Guadalaxara, and Brihuega, a town situated four leagues from the former, and which has a hundred looms employed on fine cloths, were in a flourishing state, and found a more secure consumption for their produce. In the course of 1796 they had a warehouse at Madrid, which vended from 9 to 10,000 pieces per month.

Segovia, famous at all times for the excellence of its wool, was formerly not less so for the perfection to which its numerous manufactures were carried. How fallen from its ancient splendour!

The patriotic society of that place pretends, that at its most brilliant period Segovia had 600 looms employed on fine cloths. In 1697 it had no more than 250. Until towards the middle of the 18th century they encreased. In 1748 it had 365 looms, which gave employment to 4300 persons, and consumed 50,000 arrobes of wool in the grease. Latterly, government has been greatly, perhaps too much, occupied in regenerating its manufactures: for in 1785, it established regulations in organizing them, the consequences of which were, that for the five subsequent years there was an annual diminution of 4000 of the pieces worked. The cause of this was the nature of the Segovians, so much bigoted to custom, and adverse to all innovations.

One, and one only, did justice to the encouragement of government. *Don Laureano Ortiz*, in 1779 established a new manufactory of superfine cloths, to which the King gave assistance, by granting certain privileges, by no means injurious to the other manufacturers. It shortly began to prosper. In 1786 it kept 70 looms at work, and employed 2800 persons. Ortiz has made this an unalienable property in his family. His country lost him in 1788, but his successor has inherited his zeal and his talents; and in 1792 I convinced myself that the manufactory had not fallen off. The manufactory of Ortiz, with that called de San Fernando, at Guadalaxara, are the only ones in Spain at which superfine cloths are made, a matter of astonishment in a country which produces in such abundance the finest wool in Europe.

Before we leave Segovia, we will finish what there is to say on Spanish sheep. It is in the mountains adjoining this city, that a great part of the travelling flocks graze during the summer. They as well as those of the mountains of the ancient Numantia (Soica) leave them in the month of October, pass over those which separate the two Castiles, cross New Castile and disperse themselves in the plains of Estremadura and Andalusia. Such as are within reach of the Sierra-Morena, go thither to pass the winter: the length
of

of their day's journey is in proportion to the pasture they meet with. They travel in flocks from a thousand to twelve hundred in number, under the conduct of two shepherds; one of whom is called the *Mayoral*, the other the *Zagal*. When arrived at the place of their destination, they are distributed in the pastures previously assigned them. They set off on their return in the month of May; and whether it be habit or natural instinct that draws them towards the climate, which at this season becomes most proper for them, the inquietude which they manifest, might, in case of need, serve as an almanack to their conductors.

Each flock, belonging to one proprietor, is called a *cavana*, and the collection of the shearing of one of these flocks is called *pila* or pile. They take the name of their proprietors. The most numerous *cavanas* are those of Bejar and Negretti, each of which consist of sixty thousand sheep. In that of the Escorial, one of the most famous, there are fifty thousand. Prejudice or custom gives a preference to the wool of one *cavana* over that of another. Thus, for instance, no wools except those of the *cavanas* of Negretti, the Escorial and Paular, are made use of at Guadalaxara.

In 1785 the rams and ewes, which were sent to Rambouillet, were, as may be imagined, selected from the choicest *cavanas*, and the following were chosen in addition to the three we have before mentioned, those of the Marquis d'Iranda, the Marquis de Perales, Manuel de Balbuena and the Count de San Rafael. Among these *cavanas* that of St. Paulur is reckoned to produce the finest wool in all Spain; and the flock of Negretti is considered to be the finest, with respect to the strength of the sheep, and the weight of their fleece: on this account ten rams were selected from it for France which cost from 60 to 80 rials each, ewes selling at from 50 to 60 rials.

While on their return, in the month of May, they are shorn, an operation of considerable magnitude in Spain, because there it is performed in great buildings called *esquileas*, contrived so as to receive whole flocks of forty, fifty and sometimes sixty thousand sheep. Harvest time and vintage in corn and wine countries are not seasons of greater festivity. The sheep shearing is a time of rejoicing, both to the owner and workmen. The latter are divided into classes, each of which has its distinct employment. A hundred and twenty-five workmen are necessary to every thousand sheep. Each sheep produces four sorts of wool, more or less fine according to the part whence it is taken.

When the shearing is finished, the wool is made up in bags and sent to the sea ports, where it is shipped without any other preparation; or to the washing or scouring places in different parts of Castile. There are several in the district of Segovia. I particularly examined one of the most considerable, that of Ortijosa, three leagues from St. Ildefonso. I was there convinced that this operation, imperfect as it appears at first sight, because foreign manufacturers repeat it before they make use of the wool, sufficiently answers the intention, which is to preserve the wool, so that the longest voyage shall not alter its quality. Through this single scouring place there annually passes about 10,000 lb. of wool. The place is of great extent, and forms a kind of basin, the inner sides of which are gently sloping meadows, which receive the rays of the sun in every direction.

The wool is carried thither in the state it was then taken from the sheep*: each fleece is as it was first made up. In this form it is given to the *Apartadores*, who divide it

* Flandrin, who made a journey into Spain on purpose to study the nature and treatment of sheep, differs in some measure from me in his account of the manner of washing and drying. I shall not dispute the point with this valuable farmer, who, as well as myself, has had recourse to the best authorities. If the seasons and places be looked to, we may both be right.

into three heaps of different qualities. They are so much accustomed to this business, which requires a long apprenticeship, that they can tell, at first sight, from what part of the animal each flock of wool has been taken. These three sorts thus separated are extended upon wooden hurdles, where they are spread, beaten and cleaned from the dust and dirt adhering to them; they are afterwards taken to the washing place.

As soon as the water in the great copper is on the point of boiling, it is let out by two great spigots that open or shut certain pipes by which it is conveyed into three square wells, lined with hewn stone, and about three or four feet deep. The hot water falls upon a bed of wool, which covers the bottom of the well. The wool thus disposed is turned in every direction by three men. Each sort of wool is washed separately; and, according to its fineness, requires the water to be more or less heated.

After this operation, the wool is again spread upon hurdles, to drain off the water and filth, which has begun to dissolve. The coarse locks are also separated from the rest, and sold for the benefit of the souls in purgatory; for, in Spain, religion is connected with every thing. The Spaniards sanctify by this frequently whimsical association, their occupations, riches, and even their pleasures.

The hurdles are afterwards placed between the wells, and a narrow aqueduct, through which runs a stream of cold water. A man placed at the entrance of the aqueduct receives the wool, and throws it in; while five men, who stand by the side below the first man, press and rub it with their feet as it passes, and forward it from one to the other. Still lower down are other workmen who stop it in its passage, and throw it on a stone slope, where it drains, while the water runs off into a gutter contrived below the slope. A net, placed at the extremity of the aqueduct, retains the locks which slip from them, and might be carried away by the rapidity of the current.

When the wool is well drained, it is spread upon the declivity of the meadows which we have before mentioned, and four fine sunny days are scarcely sufficient to dry it thoroughly. When it is quite dry it is put into bags to be carried away. Initial letters upon the bags indicate the sort of wool contained in each; and, besides these, there is a mark which distinguishes the flock by which it was furnished; in this condition it is exported, in this state traverses the country, so that on seeing those bales pass by, their quality and the place they came from are easily recognized.

Not far distant possibly is the time, when the roads of France will be covered, with this precious article, and their ports serve but as entrepôts for the surplus, not wanted for its own consumption. Let not Spain behold with an eye of envy this possible success. Let not her allies appear to her as dangerous rivals. Should they even eventually bear away from her children the exclusive possession of this advantage, does she not possess undividedly a sufficiency of others? The field for human industry is so wide, so various its resources, that all nations may cultivate it, without rivalry, or injury to each other. Oftentimes in order to prevent grand quarrels, as to avoid law suits between individuals, the whole that is wanting is reason, and a clear understanding of each other.

In the mean time I learn from very recent intelligence, that at the period of the conclusion of peace, there were in the ports of Spain 16,000 bales of wool, whose exportation had been suspended by the war; and that since the peace was signed, our manufacturers of Sedan, of Louviers, of Elbœuf and even some houses at Paris, and Orleans, have expedited orders for Spanish wool, but to much smaller amount than before the war. We should be astonished at our manufacturers having occasion to order even these, after the rich prizes of this merchandize made by our cruisers; were it not known that they were carried for sale to Amsterdam.

CHAP. IV.—*Residence of St. Ildefonso.—Etiquette of the Court.—Titles.—Dignities.—Grandees.—Order of Knighthood.*

I SHALL now leave Segovia, its wool, and its environs, and conduct my reader to the castle of St. Ildefonso, which is only two leagues from it. The high mountains which command it are seen at a great distance, and scarcely has the traveller quitted Segovia before he discovers the castle itself. Its environs by no means announce the residence of a great court. The country is barren, and a few wretched hamlets, at small distances, are scattered about the most arid country that can be conceived; yet what better could be expected in this part of Old Castile, surrounded by barren mountains, and without roads, canals, or navigable rivers? What, however, has principally tended to the devastation of this district is the numerous herds of deer which live here in peace, and never have their repose disturbed but by the King and his family, who pass there about two months in the year. Scarcely had Charles IV. ascended the throne before (in spite of his hereditary taste for this amusement) he began to make regulations for the gradual destruction of these animals, and hastened the execution thereof by giving himself the example.

The country, however, becomes more beautiful as we approach St. Ildefonso; a number of rivulets meander through the fresh verdure, and the deer wander in herds in the copses, or bound upon the hills in a security which could not be expected in these timid animals; the tops of a few handsome houses appear above the green oaks; and the group, formed by the castle and the adjoining edifices, crowned by mountains, some naked, others covered to their summits with trees and shrubs, present a very pleasing prospect. At length we arrive at the gate fronting the royal residence, which is separated from it by a spacious court in form of a glacis.

The whole has an imperfect resemblance to Versailles. One at first imagines that Philip V., who built St. Ildefonso, wished to have about his person such objects as might recall to his recollection the abode so dear to him in his early youth. He seems to have had the same intention in establishing his military household.

Of the old guards of the Kings of Spain there remains but one company of halbardiers, which may be compared to that of the hundred Swiss. Philip V. established three companies of body guards, each of two hundred men, modelled, with respect to form and cloathing, after those of the French court. To these three bodies the King has joined a fourth, called the *American company*. Two regiments, which guard the exterior of the castle, that of the Spanish guards, and the regiment of Walloons, are also perfect copies of our regiments of French and Swiss guards. A company is detached from each of them to do duty wherever the court resides.

The command of each of these six military corps which form the interior and exterior guard of the Kings of Spain, is given to the most distinguished persons of the nation. The commander of the halbardiers is always a grandee of Spain. The captain of the Spanish company of body guards is one of the most illustrious families. A lieutenant-general has been placed at the head of the new American company. That of the Italian company is generally an Italian nobleman, and the captain of the Flemish corps is either a noble Fleming, or some stranger related by his family to Flanders. The same rule is observed with respect to the Walloons. The captain of the Spanish

guards is always chosen from the most distinguished grandees of Spain. The Duke D'Ossuna holds that station at present*.

The proofs of the predilection which Philip V. had for the residence of St. Ildefonso have survived him. His remains are deposited in a chapel within the castle. I visited this mausoleum more than once, which has something awful in its simplicity.

The appearance of the tomb which contains an illustrious person, always excites serious reflection. What then must be the impression made by that of a prince, whose reign holds so distinguished a place in modern history, and forms the epocha of the last exploits of Louis XIV., and of his greatest disasters; of a prince for whose interests Europe was agitated by three wars within less than half a century, and to whom the conquest of the greatest monarchy in the world was not the accomitant of happiness; but proved in the gloomy melancholy which obscured the last years of his life, that the most brilliant successes of ambition are ever followed by satiety and uneasiness.

More pleasing are the thoughts one cherishes in the enchanting abode which Philip V. prepared for himself in the midst of sequestered woods, surrounded by steep mountains. There is nothing magnificent in the palace, particularly in its exterior. The front on the side of the garden is of the Corinthian order, and not destitute of majesty. Here are the King's apartments, which look upon a parterre surrounded with vases and marble statues, and a cascade which, for the richness of its decorations, the purity and clearness of its waters, may be compared with the finest of the kind. Philip V. was in this respect much better served by nature than his father. From the mountains which shade the palace descend several rivulets, which supply the numerous fountains, and diffuse life and verdure through these magnificent gardens. They are on the inside a league in circumference. The inequality of the ground affords every moment new points of view. The principal alleys answer to different summits of neighbouring mountains; and one in particular produces the most agreeable effect. It is terminated at one end by the grand front of the palace. From this point are seen at one view five fountains, ornamented with elegant groups, rising into an amphitheatre, above which appear the summits of lofty mountains. The most elevated of these groups is that of Andromeda fastened to a rock. When seen at a short distance it is somewhat defective, the rock appearing too diminutive by the side of the monster which threatens Andromeda and Perseus, by whom it is attacked; but the whole contributes to the beauty of the view. The most remarkable indisputably of the five groups is that of Neptune. Genius presided both at the composition and in the choice of its situation; the god of the ocean appears erect, surrounded by his marine court. His attitude, his threatening countenance, and the manner of holding his trident, announce that he has just imposed silence on the mutinous waves; and the calm which reigns in the basin, defended from every wind by the triple wall of verdure by which it is surrounded, seem to indicate that he has not issued his commands in vain. How oft have I seated myself, with Virgil in my hand, under shade of the verdant foliage, beside the silent water, reflecting on his famous *Quos Ego!*

There are other fountains worthy of the attention of the curious; such as that of Latona, where the limpid sheaves, perpendicularly, and in every direction, fall from the hoarse

* It is he who in 1799 passed several months at Paris with all his family, and who gave a specimen of the sumptuousness of the grandees of Spain of the first order, and at the same time of the simplicity of their ceremonies, their affability, and in short of every thing which tempers in the splendour of a great fortune with a great name. The revenue of M. le Duc D'Ossuna is nearly 3,000,000 of francs.

throats of the Lycian peasants, half transformed into frogs; and spouting them forth in such abundance, that the statue of the goddess disappears under the wide mantle of liquid crystal; that also of Diana in the bath, surrounded by her nymphs; in the twinkling of an eye all the chaste court is hid beneath the waters; the spectator imagines he hears the whistling of aquatic birds, and the roaring of lions from the place whence this momentary deluge escapes by a hundred channels. The fountain of Fame is formed by a single *jet-d'eau*, which rises a hundred and thirty feet, exhibits to several leagues around the triumph of art over nature, and falls at length in a gentle shower upon the astonished spectators.

There are some situations in the gardens of St. Ildefonso, whence the eye may collectively distinguish the greater part of these fountains. The traveller who wishes to charm all his senses at once, must take his station on the high flat in front of the King's apartment. In the thick part of the foliage are contrived two large arbours, through the windows cut in which are seen twenty crystal columns rising into the air to the height of the surrounding trees, mixing their resplendent whiteness with the verdure of the foliage, uniting their confused noise to the rustling of the branches, and refreshing and embalming the air. Ascending towards the grand reservoir of these abundant and limpid waters, after having traversed a superb parterre, and climbing for some time, you reach a long and even alley, which occupies all the upper part of the gardens. In the middle of this alley, turning towards the castle, a vast horizon appears as far as the eye can reach. The immense gardens, through which you have passed, become narrower to the eye; the alleys, fountains, and parterres all disappear; you see but one road before you, which in the form of a vessel, upon the prow of which you seem to stand, has its stern on the top of the palace. Afterward, on turning, you have a view of a little lake behind you, of which the irregular borders do not, like what we call our English gardens, merely mimic the captivating irregularities of nature. Nature herself has traced them. The alley from which you enjoy this prospect is united at each end to the curve which surrounds the reservoir. The waters, which stream in abundance from the sides of the woody mountain in front, these waters, whose distant murmurs alone disturb the quiet of the scene, meet in this reservoir, and thence descend by a thousand invisible tubes to other reservoirs, whence they are spouted in columns, sheaves, or arcades upon the flowery soil which they refreshen. The image of the tufted woods which surround it is reflected from the unmoved surface of the lake, as is also that of some simple and rural houses under their shade, thrown, as by accident, in'o this delightful picture. The streams which feed this principal reservoir formerly lost themselves in the valleys, without affording either profit or pleasure to any one. At the call of art they have become both agreeable and useful. After climbing the pyramidal mountain where their source is concealed, you reach the wall of the garden which was hid by the thickness of foliage. Nothing in fact ought here to strike the mind with ideas of exclusive property. Streams, woods, the majestic solitude of mountains, these are blessings which man enjoys in common. The rivulets which escape from the grand reservoir serve by little channels, some visible, others running under ground, to water all the plants of the garden. In their course, in one place they moisten hastily the roots of the trees, in others they cross an alley to nourish more slowly the plants of a parterre. From the balon of Andromeda they run between two rows of trees in a hollow and sombre channel, the too sudden inclination of which is taken off by cascades and windings. At length, after dissecting the garden in every direction, after playing amongst the gods and nymphs, and moistening the throats of the swans, tritons, and lions, they sink under ground, and enter the bosom of the neighbouring meadows.

The task were endless to enumerate all the statues, groups, and fountains which decorate the gardens of St. Ildefonso. I shall be content with noticing that, a very few pieces excepted, all the sculpture is the work of French artists of a secondary rank, such as *Fermin Thierry*, whom Louis XIV. sent to his grandson, and their pupils, who are somewhat their inferiors; they have displayed more magnificence than taste in the square of the eight allies, *Plaza de las ocho calles*. Eight alleys answer, each at one extremity, to this centre; the other terminating in one of the fountains, dispersed through the gardens. Plats of verdure fill up the intervals between the alleys, and each has an altar under a portico of white marble by the side of a basin sacred to some god or goddess. These eight altars, placed at equal distances, are decorated with several *jets-d'eau*, particularly by two which rise perpendicularly on each side of their divinities, and have a ridiculous resemblance to the wax-lights of a christian altar. This cold regularity displeased Philip V., who a little before his death, when visiting the gardens, made some severe reproaches to the inventor upon the subject. Philip had not the pleasure of completely enjoying what he had created; death surprised him in 1746, when the works he had begun were but half finished.

This undertaking was the most expensive one of his reign. The finances of Spain, so deranged under the princes of the House of Austria, thanks to the wise calculations of Orry, to the subsidies of France, and still more to the courageous efforts of the faithful Castilians, would have been sufficient for three long and ruinous wars, and for all the operations of a monarchy which Philip V. had conquered and formed anew, as well as to have resisted the shocks of ambition and political intrigue; but they sunk beneath the expensive efforts of magnificence. Sovereigns of every state, learn from this example, that your glory, your disasters even, are sometimes less dear and burthensome to your subjects than your pleasures! Will it be credited (it has however been precisely ascertained) that Philip V. expended forty-five millions of piastres in the construction of the castle and gardens of St. Ildefonso; and that this is the exact amount of the sum in which he was indebted at the time of his death.

This enormous expence will appear credible when it is known that the situation of the royal palace was at the beginning of this century the sloping top of a pile of rocks; that it was necessary to dig and hew out the stones, and in several places to level the rock; to cut out of its sides a passage for a hundred different canals; to carry vegetative earth to every place in which it was intended to substitute cultivation for sterility; and to mine, in order to clear a passage to the roots of the numerous trees which are there planted. So many efforts were crowned with success. In the orchards, kitchen gardens, and parterres there are but few flowers, espaliers, or plants which do not thrive; but the trees naturally of a lofty growth, and which consequently must strike their roots deep into the earth, already prove the insufficiency of art when it attempts to struggle against nature. Many of them languish with withered trunks, and with difficulty keep life in their almost naked branches. Every year it is necessary to call in the aid of gunpowder to make new beds for those which are to supply their place; and none of them are covered with that tufted foliage which belongs only to those that grow in a natural soil. In a word, there are in the groves of St. Ildefonso marble statues, basins, cascades, limpid waters, verdure and delightful prospects, every thing but that which would be more charming than all the rest, thick shades.

After the death of Philip V. the castle of St. Ildefonso was entirely abandoned by the court of Spain. His second wife, Isabel Farnese, was the only one who resided there; and during the reign of Ferdinand VI., the son of Philip's first wife, led there a most retired and private life, without ever going out of the apartments of the castle, at least
without

without once exceeding the boundaries of the gardens. This singularity I have had attested by many who accompanied her in her retreat. She divided her time in the most strange manner, sitting up always the whole night long, dead as it were to the world, and to the light of day. She seemed occupied with nothing but her bodily and ghostly health, when her son Charles III., then King of Naples, coming to the throne in 1759, upon the death of Ferdinand VI., that ambition which did but slumber in her began to shew itself anew. She again appeared at court, and there exercised for the remainder of her life as much influence as in the reign of Philip V., the weakest of monarchs and of husbands. Charles III. inherited the taste of his father for St. Ildefonso. Throughout his reign the court came hither annually during the heat of the dog days. It arrived towards the end of July, and returned at the beginning of October. The situation of St. Ildefonso, upon the declivity of the mountains which separate the two Castiles, and fronting a vast plain where there is no obstacle to the passage of the north wind, renders this abode delightful in the summer months. The mornings and evenings of the hottest days are agreeably cool, and the tops of the mountains are covered with snow during a major part of the year. Yet as this palace is upwards of twenty leagues from Madrid, and half of the road which leads to it (that which begins at Guadarrama) crosses the broad tops of mountains, frequently very steep, it is much more agreeable to the lovers of the chace and solitude than to others. The reigning queen, when princess of Asturias, had an aversion for this place, which she manifested upon all occasions. Charles IV. coming to the throne in 1789, it was imagined St. Ildefonso would be entirely abandoned. In effect, the first summers passed over without the court's visiting it, the King being satisfied with short excursions to it. By degrees this repugnance diminished. The happy temperature of St. Ildefonso has enforced its rights, and the expeditions to this place take place at their usual periods. On my first appearance, in September 1775, the court was here; and here it was that I saw it for the last time in the month of August 1792; events which rapidly succeeded each other after that period, preventing my attendance there up to the time of my departure, which was the signal for hostilities between the two powers. Never was this residence more brilliant than on the occasion of the visit of the two French princes, the Count d'Artois and the Duke de Bourbon, to Charles III. in 1782, on their way to be present at the siege of Gibraltar. Since the beginning of the reign of the House of Bourbon in Spain, this was the first interview of this description. The old monarch, who always had a great portion of natural affection, displayed upon the occasion as much kindness as magnificence, shewing a solicitude and delicacy upon account of these two relations, which it was difficult to reconcile with his simple manners. The Comte d'Artois and all his suite had apartments in the palace. The whole house was at his service. Especial care was taken that his near attendants in their dress, their manners, and language, should retrace as much as possible the image of his father's court. Those attentions had no other limits than what were prescribed by the propriety of not overwhelming him with ceremonies, and leaving him in perfect freedom. Charles III. lived a very regular life, all his hours were appropriated. Hunting, fishing, prayer, labour in the cabinet, every thing was continued as before. The Duke de Bourbon, who went by the name of Dammartin, was treated with less form, but not with less affection. Young and strangers to the etiquette of the Spanish court, the two princes felt the want of a governor, and submitted themselves to the care of the Count of Montmorin, the French ambassador at that time. He was my patron. He perished by the hands of cannibals amid the storms of the revolution. Party spirit ascribed wrong conduct to him; for me, I know best his misfortunes, and far be from me the fear of acknowledging his kindness, and
rendering

rendering him that tribute of justice and gratitude which I paid him in his prosperity. His adversity but more enhances my obligations. I shall therefore observe, that during the six years of his embassy we proved in him what the Spaniards were disposed to doubt, that a Frenchman may possess gravity without pedantry, wisdom without sternness, dignity without assumption, and prudence without timidity. I should add, that, received by the King with all that respect he was entitled to, he acquired the confidence of the ministry, the friendship of the *grandees*, and the esteem of the whole nation; and notwithstanding the reservedness of his manners, I know none who possessed his intimacy but what were highly prepossessed in his favour. There is no court in Europe where the persons of ambassadors are more generally known. During the reign of Charles III. they were even subject to an assiduous attendance which was fatiguing, particularly the family ambassadors. They almost all accompanied the court to St. Ildefonso, the Escorial, and Aranjuez, and regularly attended the table of the King and his family. They had daily a private audience of His Majesty, both before and after dinner, and the rest of the foreign ministers as well as them were admitted for a short time into the cabinet. They now make their appearance at court no more than twice in a week. Charles IV., still more simple in manners than his father, has done away with superfluous ceremony, although in his private life he maintains the same uniformity and regularity. He is as partial to shooting as Charles III.; but his partiality has been rendered of much less injury to the neighbourhood of his residences. He has a taste for the fine arts, and agriculture, as we shall notice on speaking of Aranjuez, for athletic exercises, to which his strength and robust constitution are peculiarly adapted, and for music, which he as well as the Queen, enjoys in very circumscribed parties, every evening after returning from shooting, and being closeted with one of his ministers; for nothing is so rare, even at the court of the reigning family, as public rejoicings and noisy pleasure.

This court, so much retired, so regular in its deportment, is very far from being deficient either in etiquette or magnificence. Charles III., a widower from 1761, always dined in public by himself, surrounded by his officers. The reigning monarch dines with the Queen. Each has behind their chair the grand master of the household, the chief almoner, the captain of the guards on duty, and an exempt of the guards. They are waited upon by two gentlemen of the presence, who are *grandees* of Spain, one of whom serves the dishes, and the other hands the wine, kneeling on one knee. The same ceremony is used by the ladies of the palace to the Queen, and to the infants and *infantas* by titled persons in their service. The philosopher may smile at this vilifying homage, but it does not belong exclusively to Spain. It is well known the same forms are made use of towards the sovereigns of London and Vienna, and to their families, where the power of the monarch in many respects is limited. This homage, however, is more particularly displayed on gala-days. These are of two kinds, the greater and lesser galas. In the time of Charles III. there were ten of the first description every year, to celebrate the birth-days of the King, the Prince and Princess of Asturias, and of the King and Queen of Naples, the one as son, the other as daughter-in-law of the King. There are now only six; four for the King and Queen, and two for the Prince of Asturias; the other lesser or *demi-galas*, are in honour of the other princes and princesses of the royal family, and at present are twenty-two in number. These require but little more attention to dress than ordinary; but at the grand galas, the greatest pomp is displayed by all except the hero of the day, in which, however, taste does not always preside. Every person in the service of the court, from the grand master to those who hold the most inconsiderable employments, have a uniform suitable to their places, and which they wear on these occasions, on which account these

are called *galas con uniforme*. In the morning of these great days, all those who have any connexion with the court, whether by their military service, their titles, or civil functions, the ecclesiastics, and always some monks, pass before the King and the royal family, bending one knee and kissing the Monarch's hand. This is a species of loyalty and homage, and renewing of the oath of fidelity, which, besides upon gala days, is also paid to the monarch on returning thanks for any favour, or on taking leave to execute his orders any where apart from his residence.

Republicans, should they not even be philosophers, may be allowed to smile with pity at these grave minutiae. They yet are deserving of detail, as they furnish additional means for acquiring a knowledge of the human heart, its pride, and its weakness. This abasement, which, without being noble, may be looked upon as vilifying, has, however, nothing more revolting in it than the ceremonial at which our ancient knights did not disdain to kneel, upon receiving the collar; or, than the investiture which, in our days, is accompanied by the same act of submission. But what is truly singular, to say no more of it, women of the greatest distinction not only kiss the hand of the Monarch, but that of all his children, whatever may be their age or sex, and the most charming duchesses prostrate herself before the youngest infant even when at the breast, and presses, with her lips, the little hand which mechanically receives or refuses the premature homage. Thus is the fair-sex destined to meet every where with insult; denied in France the privilege of citizenship, it has no share in the honours of freedom. In Spain, it is admitted to the honours appertaining to slavery. I shall, however, observe in behalf of Spanish etiquette, that it favours the delicacy of the fair sex. Men kiss hands in public, but the ladies only in the inner apartments. None but the ladies who have employment in the palace, kiss the hands of all the royal family. The others, who are received at court, pay this homage to no one but the Queen and the Princess of Asturias. This class is composed of all the female grandees of Spain, and ladies of title; which denomination must not be understood in the sense affixed to it in France. It here becomes necessary to treat of the dignities and titles of the court of Spain*.

Princes of the blood, as we called them, have not hitherto been distinguished as such at this court. Next to the Infants and Infantas of Spain, and the sons, grandsons, and nephews of the Sovereign, immediately come the grandees; and the Dukes of Medina Celi, the immediate and legitimate descendants of the Infants of La Cerda, and consequently of royal origin, are only grandees of Spain. These are divided into three classes, differing from each other by such trifling distinctions as are scarcely worth notice. All the grandees of Spain, of whatever class they may be, are covered in presence of the King, and have the title of Excellence; when they pass the guard-room, a person in waiting stamps on the ground, in order to give notice to the centinel to port arms; in these are comprehended all their prerogatives. Beyond this, they have no honorary distinction pertaining to their title. They do not form a body, as formerly the dukes and peers of France. It seems as though the Kings of Spain, unable to deprive this order of its hereditary dignity, were desirous, in revenge, of keeping them in entire dependance,

* Certain rigid republicans have looked upon, at least as superfluous, the preceding and following details. I readily grant their philosophy the right of a smile of contempt, but it is not for them alone I write; to some of my readers they may be interesting: short would be the work that should contain those things only with which every body would be pleased; the most famous books cannot boast so much. Of what value to merchants are the philosophical declamations of *Raynal*, which, however, in great measure, made his fortune? Of what value to prigs of fashion the calculations with which his work is replete? In the immortal works of *Montesquieu*, deep thinkers look upon his epigrammatic sallies as superfluous; whereas the ladies and their beaux would willingly dispense with his learned dissertation on the establishment of the Franks in Gaul.

and subject to their caprice for any additional lustre. There is no place which is exclusively attached to their rank, if we except that of grand master, that of grand equerry, and that of *sumiller de corps*, which has some relation with the place of grand chamberlain, and the commission of captain of halberdiers; and these places, as well as all the others, are conferred solely at the King's pleasure; but there are several others which infallibly lead to the rank of grandee.

The band of gentlemen of the chamber on duty is for the most part composed of grandees; but there are also some persons of quality, who, without the former rank, obtain this dignity. It is true, none of the latter are employed immediately about the person of the Sovereign, or the heir to the crown, and the Queen and the Princesses of Asturias are served by none but grandees.

The Queen has other females of a less illustrious rank for her internal service: these are ladies of distinguished families, which, under the name of *Carmeristos*, act nearly in the character of chamber-maids.

As to the grandees of either sex attached to the King's person, they are taken indistinctly from either of the three classes; there are some whose extraction is from the most ancient and illustrious families, and who belong to the two latter orders, but who do not esteem themselves inferior upon that account. Philip V., who conferred many titles of grandee, created not one of either of the second or third class. He contended for a long time for the crown, as well against internal as external enemies; and, when he came into possession, he looked upon the favours he had to distribute as actual rewards for very signal services, either of a political or military nature; and, doubtless, thought he ought to proportion his gratitude to the importance of the services rendered; or, possibly, the haughtiness which he brought with him from Versailles to Madrid, made him fancy, that those who had had the honour of being serviceable to him, had a right to step at once into the most illustrious rank. Whatever were his motives, Ferdinand VI. imitated his example; but Charles III. has revived a distinction almost imaginary, which was falling into oblivion; and, in the last promotions, created several grandees of the second class.

They do not all enjoy the privilege of being covered in the royal presence, except when they are received for the first time, and when they accompany His Majesty at any ceremony. This honour does not, however, belong to them exclusively; they enjoy it in common with the nuncio, the family, ambassadors, and some generals of orders, who have the title of Excellence as well, and as long as their dignity continues are by these two circumstances assimilated to the real grandees. Thus, there is not one single invention of human vanity which cowed humility disdains to sanctify by its adoption.

There are some titles of grandee that become extinct at the death of the possessor, and some obtain that honour for themselves and their descendants only. These bear the title of Excellence, but are not covered in presence of the King. A more marked distinction in the different classes of grandee, and which is not founded upon law, but more imperious custom, is that which the grandees of ancient families establish between themselves and those of more modern or less illustrious extraction. The first speak to each other in the singular number on all occasions, and whatever may be the difference in their ages, or the places they hold. I have more than once heard such young grandees, who scarcely had the rank of colonel, speak in this apparently familiar manner to the minister of war, who, at the time, happened to be a grandee of Spain. Had he been of less illustrious extraction, they would have given him respectfully the title of "your Excellency." They *thou and thee'd* him, because by birth he was on a level with themselves. And an additional proof of that trivial axiom, *extremes meet*. A strong aversion

to every sort of distinction, and a desire of equalizing every thing, caused the French to adopt the same habit during the Revolution. In Spain, among the chief *grandees*, it has become the most subtle distinction that pride can suggest. They have placed it in the summit of the pyramid of nobility. But these great privileged persons are not prodigal of this honourable familiarity. In conversation, in epistolary correspondence with the great, whom they do not deem their equals, they ceremoniously give and receive the title of *excellency*. New *grandees* of Spain solicit, as a favour, the honour of being *thou and thee'd*, and should they at last obtain it, consider it as a triumph; the new *grandees* solicit the honour of speaking to each other in the singular number, as they would do the favour of the sovereign.

In the course of my first residence in Spain, I saw a striking example of this. The old Duke of Lofada, who was then *sumiller de corps*, and who, perhaps, was the only real friend of which Charles III. could boast, had accompanied him in his youth, when he left Madrid to take possession of the duchy of Parma, and afterwards of the kingdom of Naples. His extraction was from the inferior nobility. In time, he was loaded with dignities, and made a *grandee*. Coming back again to Madrid with the same prince, on his accession to the throne of Spain, it was with great difficulty, notwithstanding the favour he enjoyed, that he, at length, attained the distinction of being spoke to in the singular number by the individuals of the ancient race. The King himself, in order to procure his initiation to this privilege, interposing in his behalf, not by using his authority, for that would have been ineffectual, but by entreaty and solicitation. On other occasions, this familiarity is sometimes spontaneously granted by the most distinguished *grandees* to branches of some illustrious houses, who have not yet obtained the title, and who, thinking they have well-founded pretensions to such an honour, are distinguished by the name of *casas aggraviadas*,—*injured families*. On the other hand, the sovereign and his family treat all their subjects, who are about their persons, or approach them, with familiarity; this is at once a testimony of benevolence and superiority. All distinction is lost before them; and all Spaniards of whatsoever class, station, age, or sex, whether *grandees*, magistrates, prelates, or married women, young or old, are indiscriminately addressed in the singular number; and would anticipate disgrace if, in addressing them, the royal family should decorate them with those honorary titles, of which otherwise they are so jealous.

The title of *grandee*, when hereditary, is so in both males and females, unless the patent formally expresses the contrary. There are many houses in Spain that, by marriages with heiresses to this title, have ten or twelve *bats*; which is the vulgar term to denote the dignity of *grandee* of Spain. But the head of these houses has not the power of distributing the hats among his children. The right of primogeniture is established. There are but few families, in which the second son has a title and a *grandeeship* in his own right. All the eldest sons of *grandees* receive by anticipation, the title of excellence, but not their brothers; they simply bear the name of their family, preceded by that they received in baptism, much in the same manner as in England, where the brother of Lord Chatham is called William Pitt; the brother of Lord Holland, Charles Fox.

This distinction must not be lost sight of by a stranger, who does not wish to be deceived by the vain words count and marquis. There are many *grandees* of Spain who have no other title. There is no mark of extraordinary distinction in that of duke. It is given according to the pleasure of the sovereign, when he confers the title of *grandee*, even to the second class, of which there are recent examples; the patent alone is a little more expensive.

The title of Prince belonged hitherto exclusively to the heir of the monarchy. All those who were decorated therewith at the court of Spain were foreigners. The Duke de la Alcudia, who, on account of the signature of the treaty of peace between France and Spain, was called El Principe de la Pas, is the first instance of a King of Spain granting that title. Is it the importance of the service rendered to his country upon this occasion, which earned him this exception? or, is favour, when at its height, always secure of it in spite of laws and custom?

Formerly there was a sort of hierarchy in the order of titled nobility. The *Barons* (which are not to be confounded with the ancient Varrones,) which were met with, and are still found in Aragon, were of the lowest class; to these succeeded *Viscounts*; then *Counts* and last and chief were *Marquises*. Formerly it was requisite to be a *Viscount* before a person could become a *Marquis*, according to the *order of the titles of Castile*. But all these distinctions have now been done away with; and simple plebeians in this century, without any intermediary step, have been raised to the rank of Count and Marquis. But much is wanting of all those being *grandees* of Spain who are invested with these dignities. Most of them are no more than what are called *titulos*, or *titles* of Castile. These titles prove not an illustrious race, but the favour of the sovereign, commonly the reward of some important service. The King generally grants to him whom he thus honours, the liberty either of applying his title to one of his estates, or to his family name; sometimes even he adds a denomination which denotes the service he wishes to recompense. Thus, under Philip V. Admiral Navarro, who commanded the Spanish Squadron at the battle of Toulon, received, gratuitously enough, the title of *Marquis de la Vittoria*; he, who in 1759, escorted Charles III. from Naples to Barcelona, that of *Marquis del Real Transporte*; and more recently, during the last reign, the minister of the Indies took that of *Marquis de la Sonora*, from the name of a colony in the neighbourhood of the Vermillion Sea, which his zeal and talents had acquired to his country by peopling and improving it, and by freeing the whole settlement from the incursions of the savages; and thus a magistrate named *Carasco* received the title of *Marquis de la Corona*, as a recompence for services rendered the crown in reclaiming certain property in land, of which it had been unjustly dispossessed; thus some *grandees* of Spain add to their titles such names as call to mind any glorious or important transaction in which they have figured. The Duke de Crillon, following this method, after taking the fortress of Mahon, preserved the remembrance of it by adding that name to his own: and the Prince of the Peace owes, as we have before mentioned, this title to the most important, and possibly the most fortunate circumstance of his administration. These titles have somewhat of grandeur, somewhat Roman in their object; and, and if they depend in measure upon the caprice of fortune, they are much less dependant on favour than the rest.

The titles of Castile give to those who bear them, and to their wives, the qualification of Lordship, *Vuejtr. Senoria*, by contraction spoken *Uffia*. The refusal of this in matters of ceremony carries with it a mortification; but the greater part are too reasonable to require, or even suffer it from their equals, in the ordinary intercourse of society; though their inferiors bestow this honour upon them very lavishly. There are every where flatterers, as well as persons who love to be flattered. But those who are more particularly exact in rendering them their due in this respect, are such as have a right to the title of *excellency* in return, and delight in the gratifying distinction.

There is a title between this and lordship; that of *Uffia Illustrißima* (most illustrious lordship,) which is given to archbishops, bishops, the principal members of the council of the Indies, (called *Camaristas*,) and to the president of the two supreme tribunals, called the *Chanceries*.

The dignity of grandee, as well as the titles of marquis and count of Castile are not only unaccompanied with any pecuniary advantage, but are not even bestowed gratis. Those who obtain them, unless formally dispensed from it, pay a duty which has been received ever since the reign of Charles V., known by the appellation of *Demi-Annates*.

The grandees pay about twenty-five thousand livres (1,040l.) This duty is paid as often as the title descends, and is more or less, according to the greater or less distance between him who inherits it, and the person from whom it is derived. Besides the duty on taking up the title, the grandees annually pay another under the name of *lanzas*. This is the remains and faint image of the military service, which the great vassals of the crown formerly performed, by furnishing a certain number of spears. Foreigners, who are grandees of Spain, are exempt.

According to an arrangement mutually agreed to between the courts of Madrid and Versailles, since the same family has been in possession of the two thrones, the grandees of Spain ranked with the dukes and peers of France. This acknowledgment of equality was not obtained without much opposition on the part of the former. When the question was agitated at the beginning of the reign of Philip V., the duke of Arcos, in the name of the grandees, remonstrated against it to that monarch in the strongest terms. He asserted, that the grandees could not but be greatly surprised and offended at finding themselves considered as on a level with the peers of France. At their own court, said the duke, the grandees see no one between them and the throne, but the sons of their sovereign, whilst the peers of France must give place, first to the princes of the blood, next to the legitimated princes, and lastly even to foreign ones, not only to those of Italy and Germany, but also to those who, although descended from royal families, hold places in the service of the King of France, such as the Dukes of Lorraine, de Bouillon, and others.

On the opposite side, the grandees in Spain constituted the first order of subjects immediately after the royal family. He gave instances of kings of Spain, and even of emperors, who had treated them as equals with the princes of Italy and Germany, and proved that the grandees had always enjoyed the same honours as the princes descended from sovereigns, when they were not royal; that, when the courts of France and Spain had named representatives, those of France were princes of the blood, and those of Spain grandees; without the least difference being made in the respect and honours paid to each. From all these proofs the duke concluded, that the dignity of grandee of Spain corresponded with that of the princes of the blood in France, and not with that of the peers.

These arguments were but ill received by Philip, who had contracted at the court of his grandfather a taste for despotism. The answer he returned to the duke was, that he would do well to go and signalize his zeal with the army in Flanders. This order was obeyed, and the duke, on his return through Paris, was the first who desisted from the pretensions of which he had been the advocate. He made the first visit to the princes of the blood, gave them the title of *Highness*, without receiving the same, and addressed the dukes and peers by the title of *Excellence*, without requiring more in return; thus the cause of the grandees was lost for ever.

Their number rapidly increased; their dignity was granted to several foreign noblemen; and, as all things are diminished in value by being multiplied, the grandees have become accustomed, by degrees, to see themselves considered as on a level with the dukes and peers of France. We are not to suppose, however, that the grandees of Spain, who derive their dignity from the reign of Charles V., do not think themselves superior to others, as in Germany the princes of ancient families esteem themselves more

noble than those who were created by Ferdinand II. and his successors; but this difference, so flattering to vanity in secret, vanishes from before the eyes of the nation, and especially from those of the sovereign.

These *grandees*, possessed of high notions of their own dignity, in other respects are extremely affable and obliging. They are void of that repulsive pride attributed to them in Europe. Many of them substitute a gentleness of manners and goodness of heart, instead of that haughty and forbidding dignity, common to the noblemen of other countries. Not but that they possess, if not a motive, at least an excuse for airs of pride, in high employments, illustrious birth, and immense fortunes. Indeed with respect to the latter, they are superior to those of the most opulent at the court of France, even before the Revolution.

Except those of the princes of the blood, there were no fortunes at Versailles to be compared to those of the Duke of Medina Celi, the Duke of Alba, the Duke D'Ossuna, the Count Altamira, or the Duke of Infantado. But their appearance seldom corresponds with their fortune. They do not ruin themselves as in France, in country boxes, entertainments and English gardens, and as to the luxury of splendid furnitures, it is unknown: their pomp is more obscure, but perhaps not less expensive. Numerous sets of mules, rich liveries which are displayed but three or four times a year, and a multitude of servants, are their principal articles of expence. The management of their estates is also very costly to them. They have stewards, treasurers, and various officers, like petty sovereigns. They keep in their pay, not only the servants grown old in their service, but those even of their fathers, and the families whence they inherit, and even provide for the subsistence of their relations. The Duke of Arcos, who died in 1780, maintained thus three thousand persons. This magnificence which disguises itself under the veil of charity, appears to have more than one inconvenience; it encourages idleness and causes waste and extravagance, which, while dependants are thus multiplied, must escape the most careful vigilance. Notwithstanding all this, there are fewer great families ruined in Spain than in most other countries. The simplicity of their manners, their little taste for habitual ostentation, and the scarcity of sumptuous entertainments, are great safeguards of their fortunes. But when desirous of imitating the example of those of other courts, their splendour is equal to that of the most brilliant. This may be judged of by the appearance some have made in foreign countries when the dignity of their nation required a display of magnificence.

They have hitherto indeed but little trod the paths of ambition. At the beginning of the present century, when divided between the two princes who aspired to the throne, their passions being roused, they made efforts and displayed talents, which were not always employed in that course which success determined to be the best, but which proved that the latter reigns of the princes of the house of Austria had not benumbed their faculties. A kind of supineness, which has continued half a century, has succeeded to this fermentation; but in the reign of Charles III. they shook it off, and proved that the most distinguished subjects in a nation are not always the most useless. They embraced with eagerness the profession of arms, which in fact offered but few temptations, and which in Spain is more full of constraint for courtiers than it was in France.

At this moment, among eighty lieutenants general which there are, are twenty *grandees*; and General Count de la Union, who after several defeats perished gloriously on the field of battle, fighting against us, was one of their order. In the political department they had in the time of Charles III., more than one distinguished statesman to boast of, a Count D'Aranda, yet regretted; Count Fernan Nunez, whom death ravished at the instant he was about to retain among us; a Duke de Villahermosa, &c. &c.

Some years past the Duke D'Offuna was nominated ambassador to the court of Vienna, and the Duke del Pargue to Petersburg, but did not proceed to their destinations : at present no more than these grandees are employed beyond the frontiers ; the Count de Campo Alanzo, as ambassador at Lisbon ; the Prince of Castel Franco at Vienna, and the Duke de Trias at London ; the first of these however, has been elevated to the grandeeship but lately, and the second is a Neapolitan nobleman *.

None are however occupied with any diplomatic mission at this instant, a circumstance which has not happened before since the beginning of the last century, as up to the period of the Revolution Spain was constantly represented at Versailles by a grandee.

It appears for a long time back to have been the secret practice of this court never to grant situations to her grandees which might put any great power in their hands, and from this practice she has swerved only upon very particular occasions. For example it has scarcely ever happened that one of those American vice-royalties which for pomp, homage, and authority, are on a par with real sovereignties for the time, and equal by the means whether legal or illegal, of acquiring wealth to the most lucrative offices of the revenue ; it has, I say, scarcely ever happened that an appointment of this importance has ever been confided to a grandee ; either on account of the jealousy of the monarch who may dread so great an accumulation of title in one person, or because he would see with regret the absence of any, whose presence added brilliancy to the splendour of his throne.

The body of the grandees furnishes at present but few members to the church, the dignities of which are not, as in many other catholic kingdoms of Europe, engrossed by a few individuals of the principal nobility. The only dignity with which any of them is at present invested, is that of patriarch of the Indies, who at the court of Spain performs the functions of grand almoner †. He who holds this place is constantly in waiting near the person of the sovereign. No other grandees, except those in actual service, are near the monarch ; the remainder have their fixed residence at Madrid, whence they are absent but for a short time to *pay their court*. A few reside in the capitals of the provinces ; but I know none who habitually reside on their estates.

The dignity of grandee is not distinguished by any exterior insignia. Those of its order who are gentlemen of the chamber wear a golden key, the same as the rest. There are six orders of knighthood in Spain, besides the order of Malta ; but not one to which the grandees have an exclusive right. The most distinguished is the order of the golden fleece, founded by Philip the Good, duke of Burgundy, and which the court of Vienna continues to confer in concurrence with that of Madrid, although the former had renounced this prerogative, by the treaty which terminated the great quarrel between Philip V. and the archduke. The number of knights of the golden fleece is very limited in Spain. In no other order of Europe has the pride of nobility been more scrupulous ; it is only lately that this decoration has been granted to some ministers of state who were not of an illustrious family.

There are also four other military orders, founded at the time of the crusades ; and since the time of Ferdinand the Catholic, the king has been grand master of them all. They are those of *Santiago*, *Calatrava*, *Montesa*, and *Alicantara*. The three first are distinguished by a red ribbon, and the last by a green one. These four orders have

* Up to the period of the Revolution, the embassy to France was always filled by a grandee who was generally admitted into the order of the Holy Ghost.

† The patriarchate of the Indies and grand almonership of the court has been vested for some years in Cardinal Sentmanat, a descendant of that Marquis de Castel dos Rios ambassador at the court of Louis XIV., at the time of the arrival of the will of Charles II., the first grandee created by Philip V.

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commanderies, which are conferred by the king. Sant-Iago has eighty-seven, the richest of which is reckoned to be worth 200,000 rials a year; Calatrava fifty five, one of which is valued at 358,000 rials annually. Montoza has but thirteen and Alcantara thirty-seven, the commanderies of the two latter orders are the least considerable of the whole. They were for a long time given to every class of persons, provided they could bring the requisite proofs. Charles III. recalled them to the spirit of their first institution, and restricted the grant of them to military men. Upon this an honourable distinction for the rest of the subjects was wanting. This he supplied in 1771 by creating a fifth order, which bears his name, and is dedicated to the *conception of the virgin*. It is composed of two classes: that of the great crosses and simple knights. The great crosses wear the great ribband of the order, sky-blue, edged with white. On days of ceremony they are clothed in a long mantle of these two colours, and wear a collar upon which are alternatively displayed the arms of Castile and the king's cypher.

The number of the great crosses should be limited to sixty, according to the statutes of the order; it consists at present of eighty-three including the princes of the royal family and some foreigners. When the order was first established the members were chosen from among the grandees, except two of the great officers, of the order. A short time afterwards the king made an exception to this rule, in favour of his marine minister, the marquis of Castejón. This exception was afterwards extended: though the order is still confined to the most eminent personages of the kingdom, such as the ministers and some general officers, distinguished either by their zeal or services.

The simple knights were two hundred in number, each enjoying a pension of four thousand rials (about forty pounds). A few years since the king bestowed this lesser order upon some persons in France, not included in the two hundred. On their account they departed from the statute which rendered this order incompatible with all others, by permitting it to be associated with the cross of St. Louis.

In addition to the orders for men, the queen in 1792 instituted one which bears her name *Maria Luisa* in favour of the fair sex; it consists of sixty ladies, principally grandees. In the selection of its first members favour alone appears to have predominated.

Proofs of nobility are necessary to qualify for the small order of Charles III, as well as the four military ones; but from the facility with which it is obtained one is led to doubt this; although no great efforts of intrigue are requisite to elude this law; as nobility in most of the provinces of Spain, is not difficult to establish. And it is sufficient that he who aspires to this distinction prove himself, and his ancestors, to have lived nobly, without having exercised any of the small number of professions, which law and prejudice declare to be vile; he is then reputed a gentleman by descent; *hidalgo*; for in Spain nobility by creation is unknown. Some humourists have observed, that there are whole provinces of which all the inhabitants are gentlemen: nor is this any great exaggeration. Philip V. ennobled all the Biscayans. All the Asturians are believed to be descended from the ancient Goths, who took refuge in the mountains of Asturia, and were never subjected by the Moors, and are reputed noble on account of this honourable origin. But there cannot be a more glaring absurdity than to imagine that two or three hundred thousand men who settled some centuries ago in a small province, are all noble in the strict meaning of the word. If all men were of the same height, the words giant and dwarf would be obliterated from the dictionary. Nobility necessarily supposes a more numerous class, who are less noble, not it is true of that description, condemned in some places by absurd laws to a species of abasement, but obscure inhabitants inferior to a small member in credit and consideration. Thus, in fact, there are

in Biscay and Asturia, as in other parts of Europe, distinguished families, in the opinion of the public, who have made a great figure in the district in which they reside, either by their opulence, or the places they have held; and whatever may be the pretensions of obscure neighbouring families, the former affect a pre-eminence, which these acknowledge by their homage: this, however, prevents not the latter from cherishing ideas of grandeur, which preserve in their mind a noble pride undoubtedly preferable to the chimerical nobility of blood: so that if by some fortunate circumstance they obtain some employment less obscure than their birth, they consider that they have only regained their proper station, and are less insolent and vain than most upstarts in other countries.

I have more than once remarked this distinguishing characteristic, even in the lowest ranks of the Asturians and the Biscayans. They have, in their appearance, something more haughty, and are much less humble in their submission. They are not awed either by titles or riches. A man in place is in their eyes a fortunate man, who obtains a prize in the royal lottery, in which they all have a ticket, and may win in their turn; and this prejudice, ridiculous as it may seem, keeps them on their guard against meanness, and even against degrading crimes. This reflection is more or less applicable to all the other provinces of Spain, where *hidalgos* are more numerous, and where the members of the third class (*pecheros*) are distinguished from them by no humiliating subjection; so that nobility here excites less envy, and a desire of throwing off its yoke would less easily than in other places act as an incentive to general insurrection.

Notwithstanding those imperceptible gradations, which in Spain separate nobility from the inferior ranks, the proofs required in certain cases are closely examined; but there, as well as in other countries, money and interest procure genealogists who are not over scrupulous. A reflection, applicable to every nation, may be made with respect to the nobility of Spain, which is, that the less a monarch is limited, the more arbitrary are these distinctions, and the more irregular the gradations. Despots, even those the least tyrannical, prefer or neglect their subjects according to their caprices. Unlimited monarchs exercise this kind of influence in a greater or less degree; and there are few states in which the sovereign authority is less circumscribed than in Spain.

Under the ancient form of government it was more confined; but it has changed by degrees, and without exciting commotion. The intermediate ranks scarcely exist in name. The supreme councils, particularly that of Castile, which is the chief, have frequently tendered remonstrances, where they have apprehended that the measures of the crown would be disastrous, or have deemed them in opposition to the laws; but all the members of the councils are nominated by the king, and may be displaced at pleasure. It is from him alone that they look for advancement in the civil career; and as the inscription of the royal orders, which relate to their different departments, is made in their different registers without any legal power of avoiding it on their part, being in fact a mere matter of form; it does not appear that they possess even that power which was vested in the ancient parliaments of France, of tacitly resisting the will of the sovereign.

CHAP. V.—*Remains of the Cortes.—Council of State.—Strictures on Mr. d' Aranda, Mr. Florida Blanca, and the present Ministers.—Offices.*

THE Cortes was the only dam which could arrest the progress of despotism. The history of Spain sufficiently proves how great an influence this species of states general had in the most important affairs of government; but for a long time past, they have not

not been assembled, except for the sake of form ; and the sovereigns, without violence, without formally rejecting their intervention, have found means to elude their authority. They render them however an homage in mockery, when they promulgate ordinances from the throne under the name of pragmatic, the preambles of which state *that they claim the same respect as if they had been published in the assembly of the Cortes* ; which are never convoked except at the accession of a new sovereign to the throne, to administer to him an oath in the name of the nation, and swear fidelity. On this occasion, letters of convocation are sent to all the *grandees*, to all titled persons of Castile, to all the prelates, and to every city which has a right to send deputies to the Cortes. The two first classes represent the nobility ; the priests, the body of the clergy, and the cities which depute one of their magistrates, represent the people.

The last time that the Cortes was assembled was in 1789, at the coronation of the reigning sovereign. Its session was continued for three months, the Count de Campomanes acting as president, who on this occasion received the title of governor of the council of Castile, the functions of which office he had exercised alone for several years before. The Cortes were composed of at most a hundred persons ; for it is not every province of Spain that sends deputies to them. Galicia has her own separate. That part of Old Castile known by the name of *Montanas de Sant Ander*, is represented by the city of Burgos, which disputes the precedence, at the assembly of the Cortes, with Toledo. Navarre, the lordship of Biscay, and Gurpuscoa, have their particular states, and these different provinces take an oath to the new sovereign by means of deputies, which for that purpose they dispatch to court.

This national assembly, however unshapen, and incomplete it be, at one instant seemed to feel its authority, and was on the point of manifesting it. Already had some intrepid orators prepared themselves to express their grievances, and to point out the most intolerable ; (it might have been the signal of a revolution) ; when the court anticipated the intention, as if it foresaw what was about to happen in France ; and civilly dismissed the Cortes, who patiently dispersed.

Except these convocations, of which there have been but three in the present century, and which only gave room for vain formalities, recollection, and regret, the Cortes of the whole kingdom have not been assembled since 1713, when Phillip V. convoked them to give their approbation to the pragmatic sanction, which changed the order of succession to the throne.

It is well known that by a law, of which it would be as difficult perhaps to indicate the real origin, as that of our pretended Salic law, women ascended the Spanish throne in case of proximity of blood. This mode of succession is known under the designation of *Castiliano* or *Cognato*, in opposition to that called *Agnato*, which excludes females entirely. Philip V., being desirous of assimilating in measure the course of succession in Spain, with that of the country which gave him birth, in spite of his predilection for despotic resolutions, conceived it would be wise to obtain the consent of the Cortes towards sanctioning this resolution. He was in possession of great authority ; in a twelve years' war he had effected the subjugation of his kingdom ; he saw all Spain unequally divided between subjects devoted to him, who could have no motive for resistance to his will, and discontented subjects that he had effectually curbed. He relied therefore upon the docility of the Cortes, and was not disappointed. They acknowledged, and adopted the new order of succession, which calls to the throne the male heirs, to the exclusion of the female, however near the consanguinity ; who cannot accede to it, but in case of the total absence of any male descendant from the reigning family. There is however something more absolute than the authority of the most despotic monarchs ; I mean public opinion, and

and the indelible predilection of a people to its antient laws and customs. An attachment to the old mode of succession still exists in the hearts of the greater part of the Spanish nation, and it is more than probable, if once a question were to arise which might have to be decided either according to this ancient law, or the pragmatic sanction of 1713, it would not be determined in a peaceable manner. Happily for Spain this possible position is not likely soon to occur, since among the six children of his Majesty there are three males. In the time of my first visit to Spain, there was a period when this delicate question without being considered an idle one, was much under discussion; this was, when the present King, then Prince of Asturias, saw most of his male children fall off in their infancy, and was threatened with having no progeny but what were female. In case of the realization of this apprehension, the Castilian order of succession would have nominated to the throne the eldest of the Infantas, while the pragmatic regulation of 1713 would have pointed to one of the two brothers of the King, or their male descendants, and Europe might again have been ensanguined for the purpose of deciding the dispute.

But let us return to the Cortes, and see what remains of their authority. They are still consulted, for the sake of form, in certain cases, when for example it is in agitation to grant letters of naturalization to a stranger, but then the members of which they are composed correspond with each other, without assembling. A faint image of them, however, remains in an assembly, which constantly resides at Madrid, under the name of *Diputados de los Reynos* (deputies of the kingdoms.) At their breaking up in 1713, it was regulated, that they should be represented by a permanent committee, whose office it should be to watch over the administration of that part of the taxes, known by the name of *Millones*, and which had been granted in the reign of Philip II. with the formal consent of the Cortes, upon certain conditions, which the monarch swore to observe, and to watch the performance of which the committee of *Diputados* was appointed. The Cortes also authorized it to superintend the disposal of the *Millones*. But in the year 1718, the Cardinal Alberoni, whose ardent and imperious mind disdained all restraint, transferred it to the hands of the sovereign. From that time the committee held no more of the state revenues than the small portion necessary to pay the salaries and defray the expences of the members. These are eight in number, and are chosen in the following manner:

But first it will be proper to observe, that the division of Spain into kingdoms and provinces, such as Galicia, the Asturias, the kingdom of Leon, the kingdom of Valentia, Andalusia, &c., as described in maps and geographical treatises made out of the peninsula, are scarcely known in practice. Spain presents as strange and even a more complicated medley, than what France did previous to the Revolution.

The three provinces of Biscay, Navarre under the title of kingdom, and the Asturias as a principality, form separate states, which are without custom houses, intendants and almost every thing pertaining to fiscal sway. The rest of the monarchy, subject to its authority, is divided into twenty-two provinces belonging to the crown of Castile, and four belonging to that of Arragon. These twenty-six provinces differ materially in extent; for example, all Catalonia which pertains to Arragon forms but one province, while in Castile some are no more than three or four leagues square; each has its separate intendant, and may be compared to our generalities.

The twenty-two provinces of the crown of Castile are the kingdom of Galicia, the provinces of Burgos, Leon, Zamora, Salamanca, Extremadura, Palencia, Valladolid, Segovia, Avilas, Toro, Toledo, La Mancha, Murcia, Guadalaxara, Cuenca, Soria, Madrid, and lastly Andalusia, which comprizes four provinces still designated as kingdoms; a name which

they bore in the time of the government of the Moors, that is to say, *Seville, Cordova, Jaen, and Grenada.*

The four provinces of the crown of Arragon, are the kingdom of Arragon, that of Valencia, the principality of Catalonia, and the kingdom of Majorca.

This is not the only division by a great many. Spain is divided into thirteen military governments, twelve of which have chiefs, who bear the title of *Captains General of Provinces*; the commandant of Navarre alone having that of *Viceroy*. It is moreover divided into dioceses, which have different boundaries to what the provinces have; and into justiciary partitions which we shall notice as we proceed.

But the principal of all these divisions, notwithstanding it does not comprize the whole monarchy, that which the greater part of the acts of government are to have effect upon, is the division which partitions Spain into *the provinces of the crown of Castile, and those of the crown of Arragon*. Two parts of the monarchy which differ from each other as well with respect to the administration, as the species and collection of taxes; a distinction which had its origin at the time when Castile and Arragon were united by the marriage of Isabella and Ferdinand the Catholic.

Los Diputados de los Reynos, weak remnants of the Cortes, are chosen according to this division. All the provinces of Castile unite to name six; Catalonia and Majorca one; and the regencies of Valencia and Arragon elect the eighth. These deputies sit but for six years, at the end of which a new nomination takes place. As a relic of their ancient rights, they still retain the privilege of being, by virtue of their places, members of the council of Finance, by which the sovereign communicates to the nation the necessity of levying any new tax; and the approbation they are supposed to give to the royal will is a shadow of that consent of the Cortes, without which taxes could not formerly be augmented. But it is easy to perceive how feeble this rampart of liberty must be, which is only formed of a small number of citizens, who possess but little real power, are under the controul of government from which they expect favours and preferments, and who, after all, represent only a part of the nation.

The provinces of Biscay and Navarre, which hold assemblies and have particular privileges, send also, on some occasions, their deputies to the throne, but they form no part of the *Diputados de los Reynos*, and their constituents fix at pleasure the object and duration of their temporary mission.

We may perceive from this sketch how little the sovereign authority is limited in Spain. The councils are the organs of his will, and at the same time the depositary of the laws which emanate therefrom; his ministers are the agents of it. For a great part of the late century they have been the only persons connected. The King is habitually closeted with each of them separately. In any knotty case they are assembled in a *Junta*, in order that he may obtain their collective opinion. Up to 1718, their authority was counter-balanced by the council of state, but the ambitious Cardinal Alberoni, at that epoch, thought fit to release himself from its interference. The council of state continued to be the most honourable corps in the nation but ceased to assemble. The place of counsellor of state is now only honorary, with a considerable salary annexed to it, and furnishes the sovereign with the means of rewarding those of his subjects who have deserved well of the state. The various offices of administration generally lead to this appointment at the end of a few years.

But in the month of February 1792, a few days after my arrival at Aranjuez, Count de Florida Blanca, who had drawn on himself the displeasure of the queen, and who had either the boldness, or impolicy to slight the young Duke de la Alcudia, whose credit with the royal couple was every day augmenting, Florida Blanca whose thoughtless audacity

audacity was about to plunge his country into a war which had no motive, and was wanting even of a specious pretext in the midst of the most perfect security as he conceived, was dismissed to make room for Monsieur D'Aranda, who was as little prepared for this return of favour. He was made prime minister, and spite of his long experience he did not look upon himself as possessed singly of a sufficient ability to support the weight of the administration in such a critical juncture, and consequently urged the necessity of having recourse to a council of state, which was immediately assembled, and of which he was made the president. Notwithstanding these wise precautions, Monsieur D'Aranda was blamed for having accepted the administration, for relying upon an apparent favour of the instability of which the least insight into what was passing at court must have satisfied him. His friends would have deemed him much more honoured by a noble refusal, than in the acceptance of a situation, the splendor of which could yield no addition to his fame. His enemies, his rivals, the ministers of the powers, who had already secretly conspired against France, which he was supposed to favour, already predicted his sudden fall, and no doubt gave their assistance towards it. For my part I who look for nothing, who fear nothing, from one side or the other, who for the seven months of his administration was continually near his person, I must say, that preserving at all times a dignity frequently bordering on stiffness, he employed his means at this time in keeping the scourge of war at distance from his country, and that I cannot hold opinion with those who conceive that this last scene of his political life has diminished his pretensions to general esteem.

Succeeded in the month of October by the Duke of Alcudia, under pretence that his great age rendered it necessary he should take repose, he supported this mortification with the serenity of a philosopher. He preserved the title of president of the council of state, and filled the functions of it, until having expressed himself at one of the sittings of this council with that rigid frankness which is peculiar to him, on the subject of the war with France, and which certainly should have met with an apology in his experience, he was exiled to Jain, a city of Andalusia. On the return of peace the king, banishing him for ever to a distance of thirty leagues from his coast, and capital, permitted him to withdraw to his estates in Arragon.

At this moment the council of state is composed of thirty-two members, thirteen of which are a distance from Madrid upon different accounts, there are eleven other individuals of distinction, for the most part absent, who without being admitted to the council, are considered as *honorary members*; the value of which is little more than entitling them to be qualified *your excellency*.

The title of councillor of state, now but an honorary appellation even for those who possess it in its plenitude, is the most distinguished recompence or rather favour, which the king of Spain can confer. It is the reward of personal merit, of long service in a political career, or in some important branches of administration: for some years back it is an appendage to the offices of ministers of state. The administration is divided into six principal departments.

1. *The minister of foreign affairs* is the directing minister, and receives, as a mark of distinction, the title of secretary of state.

2. *The minister of war* has but a circumscribed authority. He is president of the council of war, which is rather a tribunal than a board of administration; but the inspectors of the infantry, and those of the cavalry, dragoons, and provincial regiments, draw up a statement of whatever relates to the corps of which they have the direction, and the minister at war has only to present the memorials they give in to the king.

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2. *The minister of war* has but a circumscribed authority. He is president of the council of war, which is rather a tribunal than a board of administration; but the inspectors of the infantry, and those of the cavalry, dragoons, and provincial regiments, draw up a statement of whatever relates to the corps of which they have the direction, and the minister at war has only to present the memorials they give in to the king.

3. The *minister of the navy* has no associates. The chiefs of the three departments, and the inspectors of the navy are named by the king on the representation of the minister; the naval ordinances prepared by him require only the sanction of the sovereign.

4. The *minister of finance* should properly be under the inspection of the superintendent-general of that department; but these two offices were some time since united, on account of the separation of them multiplying without necessity the springs of government. Charles III. had three ministers of finance: Squitaci, disgraced to satisfy the nation; Mutquiez and Leruna, who maintained their situations for life. No one will presume to affirm that the finance department was well managed during their administration; but would their having an inspector over them have caused them to be better managed? The council of finance opposes frequently but a weak barrier to the acts of the minister of that department. The president of this council for a long time was the minister himself. An uncle of the prince of the peace at present holds the situation.

5. The *minister of the Indies* had the most extensive department in all the monarchy; for in him was centered the civil, military, ecclesiastical, and financial government of Spanish America; and it may be said, that in the whole political world there has never been a minister whose power was so extensive, since it comprehended the whole of that immense country which, from the north of California, stretches to the straits of Magellan. The authority of this minister was curbed only by the intervention of the council of the Indies; but for some years back the presidency of that council has been joined to the situation of minister for the Indies. Charles IV., in suffering a council to exist whose establishment is as ancient as the conquest of America, has divided the ministry for the Indies among the five other ministers. The largest portion of this division has fallen to the lot of the *minister of favour and justice*.

6. The department of the *minister of favour and justice* comprises what relates to judiciary and ecclesiastical affairs, as well in Spain as in the Indies; but his authority is circumscribed by the great chamber (*Camara*) of the council of Castile in Europe, and by the council for the Indies in what regards America. In 1796 there were no more than five ministers, the ministry for foreign affairs being filled by Don Manuel de Godoy, who in 1792 was created Duke de la Alcudia, and who after terminating a war which he entered into no doubt with great reluctance, received the name which above all others is glorious to a minister, that of *the Prince of the Peace*. I have known him intimately, and have observed his conduct on critical occasions. I shall neither be his censor nor apologist; all that I shall say of him is, that history furnishes few examples of so much good fortune, and that so rapidly attained: his success no doubt creates envy; however, few are displeased with it, since he supports his station with dignity, and shews, by the use he makes of the favour he enjoys, that he is not altogether unworthy of it.

In his person is concentrated almost every dignity in Spain. He is a knight of the grand order of Charles III., as well as of the golden fleece; he is a grandee of the first class; he enjoys the title of prince, which no nobleman of Spanish extraction ever bore before him: in addition to these, he is prime minister, a councillor of state, captain-general of the armies, inspector and chief of four companies of *gardes du corps*, &c. &c. and possesses (the source of all these favours) the particular esteem of the king and queen. To sum up all, nature, in unison with fortune to bless him with every qualification which can entitle him to claims on happiness, has endowed him with a captivating exterior, and what is of greater value, a sound mind, and a good and benevolent heart*.

In

* In 1793, the French government conceived it had right to complain of him, and employed its influence at the Spanish court to drive him from the ministry for foreign affairs; but it could not estrange him the

In 1793 the *administration of finance* was in the hands of *Don Diego Gardoqui*. He had been dispatched from Bilboa, where he had a house of business in 1781, as *chargé d'affaires* to the United States on the part of Spain. He was afterwards appointed consul-general in England, and then succeeded Lezana, who died, in the administration of finance. He began his career with favourable auspices, having to succeed a man who had rendered himself so odious to the people, that it was with difficulty his remains could be carried in quiet to the tomb. Some address notwithstanding was requisite to M. Gardoqui to maintain his ground, surrounded as he was by the embarrassments into which his department had fallen; and some courage to support the burthen of the war in which Spain was engaged with France. After having conducted the vessel of finance for the space of six years, with more good fortune than capacity, through the dangerous navigation which it had to pass, he was nominated ambassador to Turin; M. de Varela succeeded him, who, recently promoted to the ministry of marine, had evinced greater aptitude for financial matters than for military affairs.

They both died shortly after; and at present the ministry of finance is in the hands of Don Michael Cayetano. This nobleman had filled the post of administrator of the little island Ivica, one of the Balears, for several years, and had vivified it by establishments which manifested at the same time his wisdom, and his attachment to regularity. On his return he was recommended to the prince of the peace, by the Dutch ambassador Walkenaer, a man of sense, and an eminent judge of merit of different descriptions. The account he gave of his little administration, the warmth with which he disclosed the plans of amelioration which he had conceived, made him be esteemed capable of employing his abilities in a much wider field: he was raised to the station of minister of finance; a verse has been applied to him, which I am at a loss to determine whether the offspring of envy or rigid justice,

“ Who shines within his proper sphere,
Promoted is no more a star.”

In 1793 M. de Valdez was *minister of the navy*, and had managed his department with loyalty and wisdom from the period of the death of Castejon. The court and the nation would yet have been better satisfied with him, if during the war with France he had joined to these good qualities that activity which circumstances exacted. On the conclusion of peace he obtained what for a long time he had been desirous of, an allowance to resign, and was succeeded by *Don Pedro Valera*, who had acquired considerable experience in the administrative department of the navy: he found that great neglect had existed in this office, and on his succession pursued his plan of repairs with a circumspection bordering on slowness. His promotion to the ministry of the navy did not meet with general suffrage, and shortly his conduct disgusted many of the most distinguished persons in the navy; a dangerous matter at the eve of a new maritime war: he was therefore removed to the head of the department of finance, and *Don Juan de Langara* took the administration of the navy. This admiral, notwithstanding the species of disfavour into which he had fallen, from the famous check which a Spanish squadron under his command met with in 1780, had acquired the esteem of the public by his talents and his loyalty. At that time he commanded the squadron at Cadiz; it was not long, however, that he maintained this appointment, to which he had been called by the

the royal favour, which he incessantly enjoyed. It may, on the contrary, be affirmed that these attempts to far from injuring him, but served to enhance his credit, although less openly shown; he is, in fact, the prime minister, and invisibly the chief of every department. He has been succeeded in the office for foreign affairs by three other ministers, of whom we shall speak as we proceed.

voice of the nation. At present he is captain-general of the navy, and councillor of state, and lives peaceably at Madrid, in possession of that esteem he has so well earned.

After his resignation, the ministry which he left vacant was given *ad interim* to *Don Antonio Caballero*. But at the beginning of this year an admiral generally esteemed, *Don Domingo Grandellana*, was appointed minister of the navy.

The administration of the war department, after the death of *Lerena*, was entrusted to *Count Campo Alange*, who retained it up to the conclusion of peace with France; he was then named ambassador to Vienna, and is now gone in that capacity to Lisbon. His successor as war minister was *Don Miguel Joseph de Aranza*, a soldier of distinguished merit, who, after being employed in foreign negotiations, had filled the intendency of the kingdom of Valencia with general approbation. Soon after he made way for *Don Juan Manuel Alvarès*, the uncle of the prince of the peace, and was sent as viceroy to Mexico, then in rather critical circumstances, which were not however above his capacity. A sort of fatality rapidly snatched him from this destination, and he now lives retired, but not in disgrace, at Madrid, and is a councillor of state. He has recently been pointed at as a fit person to be employed on some important mission.

Don Juan Manuel Alvarès did not long retain the war department; he as well has taken his place in the council of state. His successor *ad interim* was the same *Don Joseph Antonio Caballero*, already employed in the departments of favour and justice, and the navy, who thus was for a time the minister, with the most upon his hands of any in Europe, and who, if competent to the duties he had to fulfil, must at the same time have been one of the most skilful.

The administration of favour and justice, which was the allotment in 1792 of *Don Pedro Alcuna*, a friend of the Duke de la Alcudia, passed afterwards to *Don Eugenio de Laguno*, an enlightened, and at the same time a modest man, for a long time at the head of the office for foreign affairs; and who, when that department was rather prematurely confided to the Duke de la Alcudia, assisted the young minister, by imparting the fruits of his long experience. He did not long retain the office of minister of favour and justice, which perhaps required a man of greater activity, but sought for the *otium cum dignitate* in the council of state, and died shortly after.

His immediate successor is one of the most enlightened men in Spain, one of the most perfect philosophers I have ever met with, *Don Gaspard Melchior de Jovellanos*, a person who at the close of my last edition I had pointed out as one among the men of merit who languished in oblivion. It is pretended that the hopes formed of him have not been realized. But may not this be the language of envy, or at least of those enemies among a certain class of men, which will yet be formidable to Spain for a length of time to come, and whom the philosophical intrepidity with which he has opposed certain abuses has rendered inveterate against him? However it may be, the disgrace of M. de Jovellanos was as sudden as that justice which called him from his state of inaction has been tardy in his operation. He is retired to his province, where he cultivates literature and the useful sciences.

He was replaced by the same *Don Joseph Antonio Caballero*, of whom we have before spoken, and who thus had at once three important employments, being minister of favour and justice for constancy, war minister *ad interim*, and minister for naval affairs, the functions of which office he attended to up to the period of the recent nomination of admiral Grandellana.

At present (May 1802) there are four ministers in Spain. *Don Pedro Cevallos*, for foreign affairs; *Don Miguel Cayetano Soler*, for finances; *Don Joseph Antonio Caballero*,

for

for the department of favour and justice, as well as that of war; and *Don Domingo Grandedellana*, for naval affairs.

The stability of the ministry under Charles III. was one of the most remarkable circumstances of the Spanish government. When this sovereign had once given his confidence to a minister, incapacity, misfortune, nothing caused him to withdraw it. His ministers were consequently almost certain of retaining their employments for life; and this certainty, valuable upon many accounts, was not the less a spur to their activity. If it left them a wide field for the plans which they formed, it secured them impunity for prevarication, and afforded time for abuses to take deep root. Under the present government, has not the other extreme been rather too much followed? The chief administration in the year 1792 alone has passed into no less than three hands, and I had to treat with three successive ministers of different character and opinions, upon the most knotty points.

Five years after, the administration of foreign affairs was entrusted to Don Francisco Saavedra, with the public voice in his favour, to which I ventured to join my recommendation. Bad health was either the cause or the pretext of his premature retirement. He was succeeded *ad interim* by a young man who, after displaying some genius abroad in a political capacity, was made chief of the office for foreign affairs. Don Louis Marcano de Urgueya, who quickly became a great favourite, but this favour it appears was misplaced. Public disgrace became the price of his imprudence, and he was confined in the castle of Pampeluna.

The department which he filled was definitively given to *Don Pedro Cevallos*, the head of an ancient family of Old Castile. After studying at Valladolid, intendedly for the bar, he was sent as secretary of embassy to Portugal. On his return to Madrid, he married a relation of the prince of the peace, and was afterwards appointed as ambassador plenipotentiary to Naples; but in consequence of differences arising between the two courts, was prevented from proceeding. From what is known at present of this minister of state, it appears that his modesty and prudence afford a striking contrast with the conduct of his predecessor. One cannot here help observing, that in four years that Charles IV. has reigned, he has had six ministers of foreign affairs; while his father during the whole of his reign of nine-and-twenty years, had but three, two of which, M. Wall and M. de Grimaldi, spontaneously resigned, and the third survived him.

Fewer changes in the present reign have taken place in the other departments of ministry.

The Spanish ministers are enabled to give themselves up to the labour which their different employments require better than those of any other court. Nothing can be more regular than the life which they lead, an airing is almost the only amusement they take. From the arcana of their closets they hold correspondence with the extremities of the globe; without, their horizon is circumscribed within half a league's diameter. Their chief company is their clerks, who are accustomed to live at their table. This mutual constraint has some trifling inconveniencies; but the consequences are, a more close union between the principal and his subalterns, and a greater regularity of connection in public affairs. Those who expedite them under the eyes of the ministers are not, it is true, simple clerks, they may with more propriety be compared to our head clerks in different offices. In order to obtain appointments of this description, it is generally necessary that proofs of talent should have been manifested previously in some occupations of trust. In the office for foreign affairs, for example, almost all the principal clerks have been attached as secretaries to some diplomatic mission, and from that employment frequently pass to the situation of plenipotentiaries or ambassadors. There are

are at present six of them who represent their sovereign at foreign courts; remarkable singularity in a despotic government, in which one should imagine intrigue and favour would dispose of places, and which in this respect may serve as a model for free governments.

I have oftentimes in these Spanish offices met with at least the appearance of haughtiness, but frequently it is no other than a veil thrown over kindness; it does not prevent the administration of justice; and, let whatever will be said, I have reasons for believing that corruption is as rare in them as discretion is common. But how slow, how methodical, how wearisome their progress! How much are they to be pitied, those who play the part of petitioners, whether upon their own account or that of their country.

CHAP. VI.—*Amusements of the Court of Spain.—Gallery of paintings, statues.—Manufacture of plate glass.—Hunting match.—The Chartreuse of Paular.*

THE residences of the court of Spain (Los Sitios) have very few resources of amusement. They have no plays, no public games, no large assemblies, except on days of ceremony; and consequently these places are not inhabited, except by a very few persons whose situations oblige them thereto, at any other period than that of the excursion to Aranjuez in the summer; that of St. Ildefonso is almost deserted, so that the society of the royal personages is for the most part restricted to those whose services require their attendance. The queen when princess of Asturias, except when taking an airing at the stated hours, passed the greater part of her time in private, where she enjoyed no other amusements than music and conversation. The prince, her husband, never left her, except to accompany the king his father to the chace, oftentimes twice in a day. Since their accession to the throne, they have swerved very little from the same uniform life; but the strict etiquette observed has been somewhat lessened. They occasionally appear for a short time at the entertainments given by the grandees and foreign ministers; a condescension never shewn by Charles III.; but they never go to the play, nor even to the bull-fights.

The king during his father's life patronized the fine arts; he had made a collection of good paintings of the different schools, before he inherited one of the largest and most valuable galleries in Europe.

The collection of the court of Spain is not considered inferior to any, unless it be to that of the court of France, and that of the Elector of Bavaria. It is principally at the Escorial and Madrid. The palace at Ildefonso formerly contained a great number of paintings, but the galleries of Madrid and Aranjuez have been enriched by their removal. There remains, however, still a sufficiency to occupy the attention of an amateur for several hours.

As soon as you enter the anti-chamber of the king's apartments, there passes in review, as in an historical gallery, first an elegant portrait of Louis XIV. by Rigaud; and next, that of Louis XV. when a child; those of the regent, the Duke of Vendôme, the last Duke of Parma, of the house of Farnese, and his duchess; as also those of Charles III., when he went to take possession of the kingdom of Naples; of Philip V., on his arrival in Spain; and of the archduke his rival. The chamber adjoining has a view of one of the finest cascades in the garden. This room is decorated with several paintings, among which are some by Murillo and Solimena. In the adjoining apartments, a fine one of St. Sebastian by Guido; a Flemish family by Rubens; a picture by Poussin; two heads by Mengs; the portraits of the Princes of Condé and M. de Turenne, upon the same canvass, by Vandyck, &c. &c.

In a gallery on the ground floor, and which occupies the whole front towards the gardens, besides some fine paintings, and two charming heads in mosaic, there is a considerable number of antiques, the greater part of which was bought in Italy by Philip V., and formerly composed a part of the cabinet of Christiana of Sweden. Those which most engaged my attention were a cylindrical altar, on which the procession of Silenus is sculptured in bas-relief; a colossal Cleopatra; a statue of Jupiter wielding his thunder; several Venuses of the natural size; eight muses a little mutilated, in which modern and unskilful hands have endeavoured to repair the injuries of time, and of which the drapery is remarkable for its lightness; two groups which are banished to a corner, as they retrace the unimproving fictions of mythology, the adulterous amours of Jupiter with Leda and Ganymede, who cares without suspicion the immodest birds, whose figure the god has assumed, &c. But the antique sculptures which more particularly merit the attention of connoisseurs, are young Faunus carrying a kid, and a group of Castor and Pollux, two original master-pieces of antiquity in perfect preservation, copies of which are met with every where by the side of those of Venus de Medicis, the Laocoon, the Apollo Belvidere, and the Farnesian Hercules.

In an apartment in the gallery the finest marbles of Spain, in columns, vases, and busts, seem to vie with the productions transmitted to us from antiquity; yet notwithstanding the excellence of these modern performances, they only serve to make more conspicuous the superiority of their forerunners. A small corridor, adjoining to the gallery, contains in piles every thing for which no place could be found in the latter, Egyptian statues, fragments of columns, bas-reliefs, busts, and other antiques, consigned to dust, destructive insects, and whatever anticipates the ravages of time.

Without the castle of St. Ildefonso, proofs of the attention of the monarch, and his taste for useful establishments, appear on every side. The Count de Florida Blanca, who had at heart the public weal, and possessed much information on many points, was affected at the sight of the crowd of women and children who led an idle and wandering life about St. Ildefonso. In order to afford them employment, he proposed the establishment of a linen manufactory at the very residence of his majesty, and immediately under his eyes. At the beginning of 1781 it had not been thought of; and, rare example of celerity in Spain, before the month of August 1783, there were upwards of twenty looms employed in the new manufactory, and two great machines for pressing and washing the linen.

To set them going, a skilful person, whose manufactory was on the decline for want of encouragement, was sent for from Leon. Since its first institution this establishment at St. Ildefonso has been visibly improving.

Near this new established and much wanted manufactory there is one of luxury, begun in the reign of Philip V.; this is a manufacture of plate-glass, the only one of the kind in Spain. It was at first no more than a common glass manufactory, which still exists, and produces tolerably good bottles, and white glasses extremely well cut: this was the first step towards a far more enlarged undertaking. The looking-glass manufactory of St. Ildefonso may be compared with the finest establishments of the kind. It was begun in 1728, under the management of a Catalan, and was brought to perfection under Ferdinand VI. by a Frenchman named Sivert. Glasses are run here of all dimensions, from common squares to those of the greatest size. They are not so clear, and may be less polished than those of Venice and St. Gobin; but no manufacture has yet produced them of such large dimensions. In 1782 I saw one cast a hundred and thirty inches long by sixty-five wide. The enormous table of brass on which the liquified matter was cast, weighed 19,800 pounds, and the cylinder which rolled over it to

render the surface even weighed 1,200 pounds. In the vast edifice where this operation is carried on, an operation well worthy of examination throughout its whole process, there are two other tables somewhat smaller, and twenty ovens, wherein the glasses yet hot are placed, and remain hermetically closed for the space of from fifteen to five-and-twenty days, in order to cool by degrees. Such as split, or have any defect, are then cut to make mirrors, glass squares, or carriage plates. The maintenance of this manufactory is very expensive to the king. I reckon that if the general cost of the establishment, and the numerous drawbacks be computed, some of the plates stand him in 160,000 rials.

In a long gallery adjoining the manufactory they are made thinner by manual labour, by rubbing one upon the other, sand and water being placed between, the sand of different degrees of fineness, according to the stage of the work. The upper glass being kept continually in motion, while the under one is at rest, it consequently becomes thinner much the soonest, so much so, that five of the first are reduced to their proper thickness before the latter is sufficiently ground. This labour is wearisome and monotonous in the extreme; one glass keeping the same workman employed constantly for more than two months.

When sufficiently ground on both sides, they are polished in the following manner: the largest in the manufactory itself by the hand; the smaller are carried to a machine, where thirty polishers are moved by water: these polishers are a sort of square boxes, placed firmly on the glass, and shod with very even felt, loaded with lead internally, and are moved horizontally by the impulse of a handle of wood to which they are fastened; beforehand the plate is rubbed over with a species of emery, the production of a quarry in the neighbourhood of Toledo. This emery is divided into three classes, the coarsest of which is used first, that of a middling quality is next used, and the finest the last; after this, the glass is covered with a red earth (almagro), and is placed under the polisher. This process is carried on for each side of the glass, and takes up from eight to ten days.

An attempt was made to substitute mechanism for manual labour in grinding down and thinning the plates, and, for this purpose, machines were transported from France to St. Ildefonso; but the directors of the establishment perceiving that their adoption did not greatly accelerate the operation, and was equally expensive, returned to the original plan.

The plates thus ground and polished are at length taken to Madrid to be silvered. The king reserves some of the finest to decorate his apartments; of others he makes presents to the courts most intimately connected with that of Spain. In 1782, Charles III. sent some to Naples one hundred and thirty inches in height by fifty-four inches in breadth, and some time after his Majesty added some of the same dimensions to the presents he sent to the Ottoman court, with which he had just concluded a treaty.

The rest of the produce of the manufactory of St. Ildefonso is sold at Madrid, and in the provinces, for the King's account. In vain has a prohibition of introducing any other glass within a circle of twenty leagues around been issued in order to secure a sale; it may easily be imagined that the proceeds cannot answer the expences of so extensive an establishment, which, except the article of wood, is distant from all the raw materials it employs. Situated as it is, far inland, surrounded by lofty mountains, and at a considerable distance from any navigable river or canal, it deserves to be numbered among those costly and ruinous establishments of luxury, which contribute to the splendor of the throne, but to the impoverishment of the people.

At the distance of a quarter of a league from the castle runs the little river Eresma, which afforded Charles III. one of his most favourite recreations, that of fishing. Its banks were rugged and crooked, he levelled them, and made a causeway, or, where the ground required it, stone or sod steps. This river, or rather streamlet, is enclosed between two piles of rocks, grouped in the most romantic manner. Its limpid waters sometimes run tumultuously over lesser rocks in the bed of the river, or precipitate themselves by natural cascades, at intervals forming small basons, which serve as asylums to the trout, which are met with in abundance. In some places this river is separated by little meadows from copses of green oak, with which that part of the country abounds. In others, tufted shrubs are seen upon the tops of the rocks, or hang waving from their sides.

In the reign of Charles III. the court went once a year to alarm the Naiades of the Eresma, with the noise of a general hunt. The rendezvous was about a league from the castle. Some days previous, a number of peasants were sent to the neighbouring woods and hills to drive before them the game with which the country plentifully abounds. The limits were by degrees narrowed, until the time fixed for rousing the game. The sport then was excellent: the deer ran in small herds on all sides, seemingly perceiving the danger into which they were driven, after which they faced about and endeavoured to brave the running fire of musquetry that threatened them in the rear; but, obeying the impulses of fear, and failing in their attempt, they passed in closer herds through the fatal defile where the King, his sons, and the other princes, placed in ambuscade, waited their arrival. Their agility now became their last resource, and saved the greater number. Out of three or four thousand, and sometimes more, which thus passed in review, about a hundred fell. Some were killed dead upon the spot, others carrying away with them the mortal wound, flew to conceal their agony in the thickets. Their bodies, yet palpitating, were brought and arranged upon the field of battle. These were numbered with a cruel pleasure, for which a philosopher would reproach himself, but which it is agreed to pardon in hunters. The whole court, and the foreign ministers commonly took part in this amusement, which was repeated towards the end of every visit to the Escorial. The Counts of Artois and Dammartin were invited to a hunt of this nature, as they returned from the camp of St. Roch in 1782. They perhaps would have wished for a less easy victory over the timid inhabitants of the woods, which they were accustomed to chase, and not coolly to massacre; but the forests of Compiègne and Fontainebleau never produced such legions of fleet herds, flying off by thousands before them.

Since the accession of his present Majesty to the throne, these hunts have not been periodical, but very frequent; their principal object has been to exterminate the numerous herds of deer, which lay waste the fields of the countrymen who live in the neighbourhood of the royal residencies. On one journey to Aranjuez Charles IV. destroyed more than two thousand, by having them driven before batteries of cannon loaded with grape-shot; and in 1792 and 1793, I perceived that this praise-worthy project had been followed up with sufficient precision in the neighbourhood of his residences.

There is another place to which, during the visit to St. Ildefonso, his late Catholic Majesty once went annually to spread the noise and terror which accompany the chase. I mean the environs of Paular, a monastery of Carthusians, at the foot and on the other side of the steep mountains which command the castle. *El Paular*, one of the richest convents of the Carthusians in Spain, and famous for its fine wool, is situated in a charming valley, watered by a considerable rivulet, which runs gently through the groves

and meadows. This stream drives a paper-mill, the noise of which is the only sound repeated by the solitary echoes of the neighbourhood. A Frenchman managed this manufacture on the account of the monks some years ago, and seemed in this corner of the world to have forgotten both his country and language.

In the monastery of Paular there is nothing remarkable, except the great cloister in which Vincent Carducho has painted the principal events of the life of Saint Bruno.

I shall now accompany the reader to the castle of *Rio Frio*, three leagues from St. Ildefonso. Charles III. came here once a-year to hunt after the Spanish fashion; that is, to shoot, as the animals pass by, at the herds of deer which, at all other seasons of the year, browsed in quiet in the woods round this place. The castle of Rio Frio is situated in an extremely sandy soil. And it appears inconceivable wherefore Queen Isabella, who began to build it, resolved on making it her last asylum. That it might recall to her memory the new palace of Madrid, which neither she nor her husband had the good fortune to reside in, even for a single day, she ordered it to be built after the same plan, but of less dimensions. Her son Charles III. being called to the throne of Spain, her project of retreat vanished, and the castle of Rio Frio was abandoned even before it was finished.

CHAP. VII.—*The monastery of the Escorial.—Paintings, Pantheon, Library.—Environns of the Escorial.*

LET us now proceed towards the Escorial. At about three quarters of a league from St. Ildefonso we pass the Eresma over a bridge, and arrive at Balsain, a village situated in a hollow shaded by thick woods. The kings of Spain had formerly a hunting-seat here, to which Philip V. occasionally resorted, and where he conceived the project of building St. Ildefonso, in this wild country, intending to gratify at once his taste for solitude, and the chase. The French ambassador, before the king built him a house in the village of St. Ildefonso, resided at this old castle.

As soon as we have passed it, we climb, for two leagues, the tops of the high mountains which separate the two Castiles. The road is shaded by high pines, the tops of which are frequently lost in the fogs which rise from the bottoms of the deep vallies. The air becomes gradually colder as we approach the summits of the mountains; and when we arrived at the seven points of rocks (*los siete picos*), which, from St. Ildefonso, have the appearance of an immense parapet wall, a new object presents itself to the admiring eye. Before us we view the vast plains of New Castile, and perceive Madrid considerably within the bounds of the horizon over which the sight wanders to an immense distance. We are here in another country, and find another climate and a different temperature. The traveller frequently leaves behind him clouds above clouds, to which the mountains seem to serve as boundaries, and instantly passes into the most serene air. He afterwards descends from this magnificent belvedere by a road which, for a long time, more resembled a precipice, but the declivity of which about the year 1785, was made more gentle, and, at the end of two leagues, arrives at the town of Guadarrama, through which the great road passes from Paris to Madrid. He crosses this road to follow that which leads to the Escorial, at which the court resides six weeks in the latter part of the summer.

This famous monastery is situated at the midway, on the opposite side of the chain of mountains which terminate Old Castile. The choice which Philip V. made of this steep and bare situation, indicates the savage and gloomy character given to him by history. We will not, however, repeat its censures. Let us not speak ill of him, as we approach
this

this royal convent, where we perpetually hear him called *our holy founder*; where his ashes are deposited, and where his image every where meets the eye. This foundation, as is well known, was in consequence of a vow made on the day of the battle of St. Quentin, at which, however, Philip was not present. It is known also, that he dedicated it to St. Lawrence, on whose festival it happened. In Spain it is called by the name of this saint (*San Lorenzo*) and every thing in the Escorial reminds us of the instrument of his martyrdom. It is not only seen upon the doors, windows, altars, rituals and sacerdotal habits, but the edifice itself bears its form. It is a quadrangular building with the principal front to the west, behind which is a mountain; the opposite side which faces Madrid, takes the form of the shortened handle of a gridiron reversed; and the four feet are represented by the spires of four little square towers which rise above the four angles.

I will not undertake with the Abbé de Vayrac and Colmenar, to give the number, no doubt exaggerated by him, of all the doors, windows, courts, &c. of this famous convent. In the whole, it certainly has something awful, but it does not perfectly correspond to the idea formed of it, from its reputation. There is nothing magnificent in the architecture; on the contrary, it has rather the serious simplicity suitable to a convent, than the splendid elegance which should announce the residence of a great monarch. The front to the west alone has a fine portal formed by large columns of the doric order, half sunk in the wall, and on each side two great doors of noble dimensions. By this portal we pass to an elegant square court, at the bottom of which is the church. This principal entrance is never open for the Kings of Spain and the princes of the blood, except on two solemn occasions. When they come for the first time to the Escorial, and when their remains are deposited there in the vault which awaits them. Emblem of the gates of life, and eternity.

On this side, the door of the church is preceded by a fine peristyle; over the front of which are colossal statues of six kings of Israel, which appear as in equilibrium upon their slight pedestals. These six kings had some share in the founding or rebuilding of the temple of Jerusalem, as we are informed by the inscriptions upon the base of their statues. The two in the middle are David and Solomon, to whom the sculptor has endeavoured to give the likeness of Charles V., and Philip II. his son; so ingenious at all times is flattery, availing itself of the slightest resemblances.

The front to the south is entirely destitute of ornament; but in its four stories, including the basement, rendered necessary by the inequality of the ground, there are nearly three hundred windows. The two great doors of entrance are on the opposite front. The whole edifice is built of hewn stone of a species of bastard granite, which by its colour, become brown with time, adds to the austerity of the building. The quarry where it was dug is in the neighbourhood of the Escorial, and it is said that this was one motive for the choice of its site. It furnished blocks of such considerable dimensions, that three stones were sufficient to form the chambranle, or case of the greatest door-ways, and each step of the principal stair-case is composed but of one.

When the court is not at the Escorial, it is a vast convent inhabited by two hundred monks, of the order of St. Hieronimus. At the arrival of the court the convent is transformed into a palace. The monks are banished to the apartments in the south and west sides, and the principal cells become the habitations of the royal family, and the nobility and gentry of both sexes, by whom it is accompanied. The King himself has his in the narrow space which forms the handle of the gridiron. Philip II. seems to have wished to make this a retreat, where sovereign greatness might retire to hide itself beneath the shade of altars, and become familiarized to its tomb; and his successors,

faithful

to this vow of humility, still content themselves with the same modest habitation. It communicates, by a stair-case, with the church and vestry, in which the arts united have displayed all their magnificence.

The church is, in the form of a Grecian cross, above which is a dome. The whole building rests upon pillars rather disproportionately thick, within which are scooped out several altars. The architecture is simple but majestic. Several subjects from holy writ, and some sacred allegories are painted in fresco in the dome, by the magical pencil of Luca Giordano. The great altar, which is ascended by twenty steps, contains three different orders of architecture, one above the other, in the form of a mutilated pyramid: no expence has been spared in its decoration. Richness and elegance are united in its tabernacle. The columns are of the most precious marble; the interstices are filled up with paintings by *Lucas Cambiaso* and *Pellegrino Tibaldi*. Yet the whole has something mean in its appearance, which forms a striking contrast with the majesty of the edifice. But in revenge its two monuments are really beautiful; these perfectly accord with the first of the three orders of which it is composed, that is doric with fluted columns. The tombs are those of Charles V., and Philip II. These two sovereigns are on their knees, and their majesty seems to bend before that of the King of Kings.

They occupy the forepart of a kind of open chamber lined with black marble, by the side of the altar. There is something at once solemn and pompous in the two monuments. The spectator, while contemplating them, cannot but profoundly reflect on the vain insignificance of human greatness, and the abyss in which it is sooner or later swallowed up. These reflections become still more serious when applied to two sovereigns, whose ambition, during their lives, put the whole world in commotion, and who are now condemned to eternal silence by the only law which they had not the power to avoid.

The two nearest altars to the high altar are those of the Annunciation and St. Jerome; these possess attraction for none but devotees and goldsmiths. Two great doors, upon which are two indifferent paintings by *Lucas Cambiaso*, open and leave the eye dazzled with innumerable relics in vases, and cases of silver and silver gilt, enriched with precious stones. There is also a large St. Lawrence of solid silver, upon the breast of which are some relics of this Martyr which his disciples, no doubt, saved from the flames.

The church contains also some good paintings by artists of the second order, but in the two vestries, master-pieces of painting are displayed in such profusion as even to weary the admiration of connoisseurs. In the first, which is badly lighted, are three pieces by *Paul Veronese*, one by *Titian*, two by *Tintoret*, one by *Rubens*, and one by *Espagnolet*. The principal vestry contains a much greater number, and is sufficient of itself to give a sanction to the fame, which the Escorial enjoys. We shall content ourselves with noticing the pieces which will strike those the least accustomed to value the productions of the arts. That which has the greatest effect is the altar-piece, by *Claude Coello*, a Portuguese, otherwise little known. It retraces a scene, of which the vestry was the theatre. Charles II. accompanied by the nobility of his retinue, is represented on his knees before the holy sacrament, held by the prior of the monastery; the monarch went thither publicly to supplicate pardon for the profanation of a host, lacerated by impious hands, and revenged by a miracle. And although it be far from the best piece, there is none which leaves a greater impression upon vulgar minds. Real connoisseurs, and those who are dazzled by great names, prefer a fine holy Virgin by *Guido*; two paintings by *Vandyck*, one the woman taken in adultery, the other St. Jerome naked to the middle, and writing as he is dictated to by an angel, whose freshness of complexion produces

produces the most agreeable contrast with the fallow skin of the aged saint. A large picture by Tintoret, in which this painter has indulged all the caprice of his imagination, in giving a representation of the Lord's supper. An assumption by Annibal Carracci; several pieces by Titian, two of which are admirable for the colouring, one a St. Sebastian of the natural size, and the other our Saviour disputing with a doctor of the law; three by Raphael; one called *the pearl*, on account of its superior excellence, is a holy family, in which the infant Jesus has a grace, a justness of expression, and an exactness of drawing which belongs only to this great master; and another, the visitation, in which the modesty of the virgin, and her embarrassment on appearing before Elizabeth with the unexpected and already apparent signs of her pregnancy, cannot be too much admired.

Less celebrated artists have also contributed to the decoration of the vestry. I shall mention but two: the *chevalier Maxime* and *Romanelli*. The first has exhibited the beauty of Guido's forms in the painting where Christ disputes in the temple with the doctors, and the graces and sweetness of the pencil of Albano appear in that of the latter; the Virgin seated, caressed by her holy infant, and St. John the baptist. It may be imagined, without my saying it, that this vestry contains, in large drawers, sacerdotal ornaments, chandeliers, sacred vases and the like, of the richest description, which illustrate the magnificence of the kings of Spain more than their piety.

The same observation may be made on the pantheon, their sepulchre, to which a door in the passage from the church to the vestry opens. The staircase is entirely covered with marble, as is also the inside of the pantheon. This is divided into several chambers, each of which has its particular distinction. One of them is what is called the *podridero*, or the *rotting place*. Here the bodies of the kings and the royal family are delivered up to the first ravages of corruption. The bodies of the princes and princesses of Spain, who have not reigned, are deposited in another. It is in this august and dismal assembly that the Duke of Vendôme is placed, as was M. de Turenne at St. Denis, among the remains of our kings. This I ascertained from the register of the monastery, in which I found an account of his remains being brought thither, the 9th of September 1712.

The real pantheon serves as the last asylum for the kings and queens of Spain alone. A few rays of half extinguished light with difficulty penetrate this cold abode. To supply the defect, a superb lustre, pendant from the cupola, is lighted up on extraordinary occasions; but except in these cases the curious are conducted by a flambeau into the middle of this motionless and silent assembly of sovereigns. By the unsteady light of the flambeau we discover, opposite the door by which we enter, an altar and a crucifix of black marble upon a pedestal of porphyry. The rest corresponds to this melancholy magnificence. The cases which contain the bodies of the kings and queens are placed on each side of the altar, in three stories, and in different compartments, formed by fine fluted pilasters of marble; the cases are of bronze, simple, yet noble in their form. The pantheon is not yet full, but the empty cases are ready to open to receive their deposits. A salutary yet terrible lesson, which kings have not refused to receive from the bold designs of an able architect.

Philip II. reposes in the most elevated tomb of the first division. He it was who laid the foundation of the pantheon; but it was not finished till the reign of Philip IV. It has yet been open but to three sovereigns of the house of Bourbon, the young king Louis I. who ascended the throne in 1724, and died the same year, and queen Amelia, wife of Charles III. and Charles III. himself. Philip V. and his queen are interred at St. Ildefonso; Ferdinand VI. and queen Barbara his wife, at Madrid, in a convent which they had founded.

The following well-known line cannot be applied to this temple of death :

*Le temps, qui détruit tout, en affermit les murs *.*

The ravage of time, seconded by the damps, has not spared even the marble. Here we are at once led to reflect on the frailty of man, whatever his rank, and the perishable nature of those works, which in his pride he dared to consecrate to immortality.

The choir of the monks of the Escorial is above the great door of the church, and opposite the high altar. The walls are decorated with paintings in fresco, the subjects of which have relation to St. Jerome and St. Lawrence. The pulpit, notwithstanding its enormous size, turns upon a pivot with surprising facility. Behind the choir is a master-piece of sculpture ; a Christ in marble, of the natural size ; it is the work of Benvenuto Cellini, by whom the Comte de Bourbon was killed upon the walls of Rome.

From the sides of the choir begins a gallery which runs along the two fronts of the church, and communicates by four doors to the first story of the monastery ; it is intersected by several spaces between the joints and pillars which support the congregation. Thither I frequently went, that I might feel those sensations, which the minds of persons the least devout are susceptible of at the solemn aspect of a temple. That of the Escorial disposes one more than any other to such meditations. Its mass, the solidity of which has already survived its founder, who sleeps within its walls, almost two centuries, and will survive him for twenty more ; the memory of this imperious monarch, which for a long time past receives no other tribute there than funeral prayers, and whose shade is supposed to wander in this melancholy monument of his fear and his piety ; the volume of a hundred voices making the roofs echo with the praises of the eternal Being ; all these dispose the mind to that serious reflection, which is far more pleasing to the soul than the giddy dissipations of the world.

But let us finish the description of the other beauties contained within the Escorial. On leaving the gallery, one of which is on each side the church, we pass a long corridor, called *The Hall of Battles*, because the paintings represent several between the ancient Kings of Spain and the Moors. The attitudes, dresses, and lively colouring excite the admiration of all connoisseurs.

I cannot, however, avoid mentioning the two great cloisters : they are paved with marble, and are excellently proportioned. The paintings in fresco of the lower cloister are, perhaps, more extolled than they deserve. In seeking for the effects of perspective, and brilliant colouring, one meets with disappointment ; but the admirer of heads full of expression, and the great and vigorous forms of the school of Michael Angelo, will return more than once to examine the principal events of the life of our Saviour, painted in almost colossal figures by Pellegrino Tibaldi, round the cloister.

Both the cloisters are entered by narrow and obscure corridors. The chief defect in the architecture of the Escorial, is that, in general, the principal objects are not placed so as to have the best effect. The portal and great staircase are seen but by accident. There is a fine inner court ornamented with two rows of arches, of a simple but noble stile of architecture ; the center is occupied by a small temple, which is perhaps the most regular piece of architecture in the Escorial : but it seems to hide itself from the eyes of the curious.

The great cloister below, which communicates with the capitulary hall, is hung with several paintings by Titian, and one by Velasquez, representing the sons of Jacob bring-

* Time, which destroys all things, has given strength to its walls.

ing him the bloody garment of their brother Joseph ; a painting the effect of which is admirable ; a virgin by Raphael ; a St. Jerom by Guercchino ; three pieces by Rubens, and three by Spagnoletto. But the pieces most to be admired in the capitulary hall, are three masterly paintings by Guido.

The grand cloister below has a communication with the old church of the monastery. This as well contains some paintings worthy of attention ; several by Titian ; three by Spagnoletto, remarkable for beauty of colouring ; and one, by Raphael, which, for its beauty, nobleness of its figures, correctness of drawing, and every excellence that characterises the inimitable talent of this great master is superior to all. I have seen connoisseurs view it with transport, and shed tears of admiration, before this sublime master-piece, without these delicious impressions being weakened by the fantastical union of persons it presents : these are the Virgin Mary, Christ, and St. Jerom in a cardinal's habit, reading to them the bible, while the angel Raphael introduces to the divine group young Tobit, advancing with a timid air to present his fish. The last circumstance has given this piece the appellation of *Madonna del Pez* (Our Lady of the fish) *. It is inconceivable how the genius of Raphael could stoop to this strange composition, undoubtedly, prescribed him, and yet in the execution leave no marks of such compulsion. If his exquisite taste was not disgusted by a dissonance which shocks the least delicate, what becomes of the rules of art, and the precepts of reason ?

Even after admiring the *Madonna del Pez*, one may look with delight on the superb piece of Titian (the last Supper) which takes up the whole breadth of the refectory of the monks.

In the upper cloister, among some paintings, not above mediocrity, we may notice a few by Spagnoletto, one particularly which represents Jacob guarding his flocks, and one by Navarette, known by the name of the dumb, and whom Philip II. called the Titian of Spain.

The staircase which leads from the lower to the upper cloister, must not be passed over in silence. The four sides of the frieze and the ceiling are painted in fresco by Giordano, and represent the battle of St. Quintin, the accomplishment of the vow of Philip II. and the arrival of that monarch at the celestial court.

On the first landing-place of the staircase there are little cloisters, which lead to the library of the Escorial, less remarkable for the number of volumes it contains than for the choice of them, and more particularly the Arabic and Greek manuscripts. Art is exhausted in its decoration ; and if there be a defect, it is perhaps in its being too much ornamented. Every vacant space is filled with paintings ; the ceiling, which is vaulted, is ornamented with Arabesques and figures for the most part colossal. Tibaldi, the master of Michael Angelo, has here displayed the frequently exaggerating vigour of his pencil ; his forced attitudes resemble contortions ; his forms are so great as to become gigantic and almost monstrous ; the shelves which contain the books, and which are of precious wood, beautifully carved, appear trifling by the colossal figures of Tibaldi. Above the shelves are paintings in fresco by Barthelemi Carducho, which also suffer from the cause already mentioned ; the subjects are taken from sacred or profane history, or have relation to the sciences of which the shelves below present us with the elements. Thus the council of Nice is represented above the books which treat of theology ; the death of Archimedes at the siege of Syracuse, indicates those which relate to mathematics, &c.

The middle of the library is occupied by globes and tables ; upon one of the latter is a small equestrian statue of Philip IV., upon another, a little temple of solid silver, orna-

* The engraving of this piece, published in 1782 by *Selma*, one of the most able artists in Spain, gives but a faint idea of the noble appearance and harmony of the characters in this magnificent painting.

mented with lapis lazuli and precious stones. Round these are ranged all the ancestors of Ann of Neubourg, wife of Charles II.

In the intervals between the shelves are portraits of Charles V., and of the three Philips his successors to the throne of Spain. Ye philosophers, who, after having read what I have written, shall visit this library, stop before the portrait of Philip II, painted with great exactness by Pantoja de la Cruz; contemplate his grave and austere physiognomy, and you will read an abridgement of the history of his reign; but communicate not the result of your reflections to the monks who accompany you, this would be a bad return for the obliging reception you will meet with. Should you bring prejudices with you to the Escorial against the Spaniards in general, or, what would be more excusable, against the monks in particular, you will certainly lay them aside, after having passed a quarter of an hour with the Jeronimites of this monastery; you will be convinced that, even under the religious habit, the Spaniard frequently conceals much complaisance and real goodness of heart. For the truth of what I here say, I may appeal to two learned Dan's, who arrived at the Escorial in 1783 to satisfy their learned curiosity, and who were perfectly well received by the monks, notwithstanding the difference of their manners, language, and religion*. They were lodged in the convent, and provided with every thing they could wish with the most generous hospitality. All the treasures of the library were opened to them, and they passed two months in examining and making extracts from such manuscripts as excited their curiosity.

The obliging generosity they experienced on this occasion was the more remarkable, as the manuscripts entrusted to their inspection were then unknown to the public, except by a few extracts given of them by a Spaniard, named Casiri, in two volumes in folio, which are far from completing the extensive plan the monk proposed to himself. After his death, they were configned to another of the fathers of the Escorial.

The manuscripts are not kept in the great library, which is open to all comers every morning and evening during the stay of the court, but in a large hall above, always shut up; and to which all the books proscribed by the Spanish orthodoxy are sent. The portraits of such natives of Spain as have distinguished themselves in the sciences, arts, or in literature are hung round the hall, and the number of the learned in Spain is more considerable than out of that country is generally conceived.

In the library of the Escorial the books are placed the contrary way, so that the edges of the leaves are outwards and contain their titles written on them. I asked the reason for this custom; and was told that Arius Montanus, a learned Spaniard of the sixteenth century, whose library had served as a foundation for that of the Escorial, had all his books placed and inscribed in that manner; which no doubt appeared to him to be the most commodious method of arranging them; that he had introduced his own method into the Escorial; and, since his time, and for the sake of uniformity, it had been followed with respect to the books afterwards added. This explanation proves nothing but the oddity of one man, and an attachment, common to most men, to established customs, especially when in themselves they are almost indifferent.

In a small room adjoining the great upper cloister one is delighted with an annunciation, by Paul Veronese; a nativity, by Tintoret; a descent from the cross, and a St. Margaret, frightened by the apparition of a dragon, by Titian; but more especially one by the same master, which is called *the glory of Titian*, either on account of its excellence,

* Mr. Moldenhauer, at present Chief Librarian at the Royal Library of Copenhagen, and Mr. Tychsen, Professor of the University of Gottingen. Both have enriched German literature with the fruits of their labour in the Escorial.

or because it represents Charles V. and Philip II. admitted to celestial glory, in presence of the principal patriarchs of the ancient law.

A small cabinet adjoining to this hall contains several relics, one of the miraculous urns at the marriage of Cana, an old manuscript of the life of St. Theresa, written by herself, &c.

Shall I yet speak of several chef d'œuvres which are seen on descending from the King's apartment to the church? of a descent from the cross, by Spagnoletto; and a large picture representing Lot and his daughters, one of the most striking in the Escorial, by the Chevalier Maxime; of another much smaller, by Reubens, in which several martyrs are grouped in suppliant attitudes round the throne of the Virgin.

This last piece is placed near the small saloon, and faces the door of the apartment, according to the tradition of the monastery, in which the unfortunate Don Carlos lost his life; not by order of Philip II., but by starving himself to death through despair; a circumstance, it is said, much more attributable to the violence of his untractable character than the severity of his father. It is not, however, in the Escorial that the true account of a transaction, which stamps with horror the memory of its *holy founder*, can reasonably be expected to be met with.

I should never finish, were I to describe all the curious paintings in the Escorial. Those who wish for a more complete nomenclature of the curiosities of the monastery, called by some the eighth wonder of the world, may consult the description, in folio, given of it by Father Ximenez, one of its monks, and the work of the Abbé Pons, a lover of the fine arts who died lately, and who, in the seventeen volumes of his *Travels in Spain*, has consecrated one entirely to a description of the Escorial. What I have said is sufficient to inform my readers, that it is to its rich collection of pictures the Escorial owes its reputation; and that if it were despoiled of this part of its riches; if the court should not come to reside there every year, with its train, the Escorial would be nothing more than a great convent, much more striking from its mass and solidity, than the magnificence of its decorations.

It has a narrow terrace on each side, whence the eye commands, towards the east, a very extensive but little varied prospect. The Abbé de Vayrac and Colmenar particularly speak of its extensive park. For my part, I saw nothing in the environs but thinly planted woods full of rocky eminences, intersected with meadows, which are seldom green, and stocked with innumerable herds of deer, but no inclosure, no park, according to our acceptance of the word; in short, nothing presenting that appearance of grandeur and magnificence, which we naturally expect should accompany a royal mansion.

From the terrace you descend by steps cut in the side to a garden neither large nor handsome; not even carefully cultivated. At the end of the terrace, to the west, is an out-house adjoining to the grand edifice, but of a more elegant architecture. It communicates behind with a new building, parallel to the principal front of the convent, and which comprises the sleeping rooms of the Casa de los Infantes.

This building, placed immediately at the foot of the mountains, and fronting the winds which force their way through the narrow passes, contributes to check their violence. It, however, does not prevent their effects from being very perceptible, especially during the season which the court passes at the Escorial. They are the more troublesome from their passing along the front to the north, and impetuously sweeping the oblong space which separates it from the apartments allotted to the ministers, and some of the clerks in office, and which you are obliged to cross to go from the convent to the village. If the exaggerated accounts given to strangers are to be believed, these

furious winds not only stop those who are walking towards them, make them stagger, and sometimes throw them down, but they blow with such violence against the carriages stationed before the palace, as sometimes to remove them from their places. I, however, have never met with any of these wonderful exhibitions in my different visits to this place, although on this walk called *Lanja*, leading from the convent to the village, there are frequent whirlwinds; to do away the inconvenience of which to foot passengers, a few years ago a subterraneous and vaulted gallery of hewn stone was constructed, called *La Mina*, which runs under the whole ceiling; sheltered by this impenetrable roof, one may brave the fury of the elements in all weathers, and disregard the winds which roar above one's head. The idea is said to have been given by M. de Mañones, a grandee of Spain, who died soon after the gallery was finished, and whom we have seen ambassador in France, after having attended the congress of Aix la Chapelle, which brought him into notice. This is a mode of obtaining celebrity at easy expence.

The situation of the Escorial renders the walks in the environs painful; you may wander with pleasure, however, in a valley between the front to the south and a mountain, which opposes to it its high and woody top. The inequality of the ground produces fresh prospects at every step, and favours the rapid fall of several rivulets which meander through the copes.

A pleasing melancholy creeps over one listening to the distant murmurs of these rills, which are heightened by the rustling of the trees, often rudely treated by the north wind; to these are added the hollow bellings of the deer, which in rutting time restlessly wander under their shades. This valley slopes in a gentle descent from the *Cazino* of the infant Don Gabriel to that built by the present King when prince of Asturias. These two little houses are fitted up within with more elegance than could be expected from their modest exterior. That especially called *the Prince's*, contains some of the richest and most highly finished sculpture, gilding, joinery, and locksmith's work that can be; Charles IV. collected there a great number of paintings, some of which with respect to their size and subject, might be better placed elsewhere than in this pleasing habitation; the heads of the apostles, for example, melancholy productions of Spagnoletto, whose pencil seems to have been exclusively employed on penitentiary subjects. This palace in miniature would be far better furnished, were no other pieces left than cheerful landscapes, some of the best paintings of Madrid of a small size, and the two sea pieces by Vernet, of which Louis XVI. a few years ago made a present to the prince of Asturias, who testified a desire of possessing at least some of the productions of that grand master. These are not the only ones; Vernet painted the whole of the pannels of a cabinet, the dimensions of which were sent to him by the prince. The inimitable talent of Vernet is conspicuous in them all, and if posterity should be ignorant of their being painted in 1782, they will be thought to be the productions of his prime.

The little lodge of the infant Don Gabriel, which his brother Don Antonio now inhabits, is less than that of the prince his brother, and not so much ornamented. It had three or four of the best pieces of Spagnoletto, especially a St. Peter, remarkable for accuracy and expression, though it might be more admired in another place. But none would banish from the collection two heads, one by Corregio, the other by Murillo, both of exquisite grace and softness. The infant Don Gabriel, as much as possible in a prince, who united the knowledge of a connoisseur and the zeal of an amateur, not satisfied with encouraging the arts, cultivated them himself, and hung with drawings by the greatest masters one of the cabinets of this lodge.

CHAP. VIII.—*The palace at Madrid.—Buen Retiro.—Picture of the three last reigns.—The walk called El Prado.—Botanic garden.—Cabinet of natural history.—Academy of the fine arts.—The Plaza Major.*

WE will now take leave of the rocks, the mountains, and gloomy beauties of the Escorial, and conduct the reader to Madrid by one of the finest roads, it is true, but across one of the most barren countries in Europe. There is, however, as we descend from the hill on which the monastery stands, a small forest of beech, which affords an agreeable prospect. To the end of the reign of Charles III., innumerable herds of stags, which paid but little attention to the noise of carriages passing, were seen feeding among horses and oxen. Startled by a false alarm they were seen to file off, bounding before the traveller, whom they appeared to challenge to the course. The measures adopted by Charles IV. have lessened their number and increased their timidity. In passing through the forest between the trees several ponds are discovered, whose rural banks invite to contemplation; farther on a solitary house offers an asylum to lost wanderers. This is the farm-house of the monks of the Escorial, whom, in spite of their affability, I cannot forgive enjoying such hurtful opulence. According to a calculation, the exactness of which cannot be suspected, their annual revenues amount to upwards of seven hundred thousand livres (above 29,000*l.*).

After having quitted this forest we meet with no more trees until we approach the Manzanares. This very small river runs at some distance from the foot of the heights upon which Madrid is situated. It is almost always shallow enough to allow carriages to ford over. There are, however, two great bridges over it, that of Segovia, and that of Toledo. The former, built by Philip II., is so disproportioned to the breadth of the Manzanares, as to have caused that remark which attention would convince an observer is greatly out of place—*that fine bridge only wants a river*. At the bottom it merits neither the praise nor the point of the epigram. The apparently disproportionate dimensions of many bridges beside this in Spain have a very reasonable origin. Spain is intersected in almost every direction by long chains of mountains, whose summits, notwithstanding the heat of the climate, are frequently covered with snow; the rivulets, and the rivers which descend from their sides, have usually but a small stream of water, because droughts are frequent in the provinces through which they run; but when abundant rains, or the melting of the snow increase their volume, the beds of the rivers are the more extended for their not being deep, and filling with sand; to answer which circumstance, although it seldom occurs, the dimensions of their bridges are calculated. They are solidly constructed on account of the sudden risings of the rivers, and their apparently disproportionate length is to obviate the inconvenience which might arise from an overflowing. Whole ages and nations must not be accused of ignorance and stupidity, because we cannot at first discover the reason for certain customs and practices.

Madrid makes a good appearance on entering it from the Escorial. After having passed the Manzanares, we proceed along a part of a fine road, planted with trees, which leads from the capital to Pardo, a royal mansion about two leagues from Madrid, where the court resided during the reign of Charles III. for two or three months in the year, but which his successor but seldom frequents, to shoot in the woods about this mournful chateau. The road runs for some time along the banks of the Manzanares, and on the opposite side we see an ancient country residence of the Kings of Spain, the *Casa del Campo*, but which has been neglected by the family of Bourbon.

The gate of St. Vincent, by which we enter, is new and tolerably elegant. We afterwards ascend with much difficulty to the palace, which standing alone upon an eminence, without either terrace, park, or garden, has rather the appearance of a citadel than that of a residence of one of the most powerful monarchs in the world; but as we approach, it strikes one differently. Its form is almost square, and there is a spacious court in the middle, around which are large piazzas. The apartments and offices of the principal persons of the court are upon the ground floor, which they wholly occupy. A fine marble stair-case leads to the first story, the sides of which are richly decorated. The King's apartments are of the most magnificent dimensions. The hall, in which the throne is placed, (*el salon de los reynos*,) may be admired even by those who have seen the gallery of Versailles. The different dresses of the Spanish monarchy are painted in fresco upon the ceiling by a Venetian named Tiepolo. Fine vases, little statues, and antique busts are distributed upon all the tables. Almost the whole of the ornaments are of Spanish production. The looking-glasses, perhaps the largest in Europe, were manufactured at St. Ildefonso, as well as the glass of the windows. The tapestry was made in a manufactory near the gates of Madrid; and the inexhaustible and variegated quarries of the peninsula furnished marble for the tables and floors.

The apartment adjoining is that in which the King dines. Mengs, who painted the ceiling, the subject of which is the assembly of the gods and goddesses on Olympus, has displayed all that rich and brilliant colouring for which he is admired. During the summer, the portraits of Philip II., Philip III. and his Queen, Philip IV., and the Duke d'Olivarez, all on horseback, painted by Velasquez, and those of Philip V., and the Queen Isabella Farnese, his second wife, by Charles Vanloo, are substituted for the tapestry. It is not necessary to be a connoisseur to be struck with the astonishing superiority of the first of these. The fine form of the horse of Philip IV., its spirit, and the firm posture of his body, are above all praise.

This apartment opens into that wherein the King gives audience. The ceiling, which represents the apotheosis of Hercules, is a master-piece of Mengs. His last painting, on which he was employed at Rome when the fine arts and his friends were deprived of him by death, is placed in the same apartment; it is an annunciation. The Virgin has an admirable expression of modesty and sweetness; but one laments the angel Gabriel should not have a countenance and attitude more suitable to his message. There is, moreover, in this apartment a large painting by the same master, the adoration of the shepherds, in which the men, women, and children are finished pieces, equally beautiful and full of expression. His works composed the principal decoration of the bed-chamber of Charles III., who was delighted with the productions of this eminent painter. His descent from the cross, however, in the opinion of connoisseurs, eclipses every thing else. The eye is never tired with contemplating the deep and tender grief of the beloved disciple; the sublime attitude of the Virgin, who in despair expects no comfort for her sorrows but in heaven; and the softer, but not more affecting affliction of the Magdalen, who preserves all her charms in the midst of the general grief; and lastly, the body of Christ, which a friend of the author, the Chevalier Azara, perfectly qualified to judge of what he speaks, pronounces to be admirable, for the truth, the divine appearance, and beauty of the flesh, which, unlike other painters, Mengs has not presented torn and discoloured from long suffering.

The chamber next to that in which the throne is placed, is entirely filled with admirable paintings of the Italian school. Among more than a dozen capital pictures of Titian, is a Venus blindfolding the eyes of Love; and its companion, the subject of which is two females of exquisite beauty, with a warrior between them erect, a copy of which

which is in the Museum at Paris ; Venus at her toilette ; a Sisyphus ; a Prometheus ; and above the rest, a painting of Adam and Eve, which has for its companion the copy which Rubens made from it ; but which, in the opinion of Mengs, served only to make more conspicuous the inimitable excellence of the original. Two pictures by Paul Veronese, several by Bassan, and a Judith by Tintoret, are seen with pleasure in the same chamber ; and in the next apartment a few by Luca Giordano, and one by Spagnoletto.

The succeeding apartment is in like manner hung with pictures ; particularly two admirable pieces by Velasquez, one of which represents the forge of Vulcan, the other a Spanish general, to whom the keys of a city are given up.

In the adjoining apartments, among a great number of paintings by the first masters, are an adoration by Rubens, and a carrying of the cross by Raphael, which alone are worth a collection. In the first Rubens has displayed all the magic of his pencil, his richness of drapery, and all the magnificence of composition. It is impossible not to be struck by the noble air and grandeur of one of the kings. His carriage, attitude, and retinue seem to announce him commissioned by the universe to congratulate its divine author upon an event of such importance to all mankind ; but the painting of Raphael inspires sentiments more affecting, though not less sublime. The Saviour of the world sinking beneath the weight of his cross rather than that of his grief, and preserving in the midst of his persecutors, who force him along and ill-treat him, a resignation and serenity which would disarm cruelty itself ; appearing less concerned for his own sufferings, than earnest in endeavouring to console his afflicted mother, who strives to soften his persecutors, and the supplicating women who are overcome with grief for his fate. The impression which results from these two great compositions, renders the mind almost insensible to the beauties of the other paintings of Titian, Vandyck, Raphael himself, and even of little master-pieces of Corregio.

There are paintings of a different kind in the late apartments of the Infanta *, Maria Josephine, sister to the King ; this is the profane side of the palace of Madrid. In the first chamber is one by Giordano, in imitation of Rubens, it represents the painter himself working at the portrait of a princess : there are also several voluptuous paintings by this master of the Flemish school ; a combat of gladiators, in which the vigour of Lanfranc's pencil is easily discovered ; and a capital piece by Poussin, the subject of which forms a singular contrast to the devotional paintings of which we have already spoken. This is a dance formed by a troop of nymphs about the statue of the god of gardens ; the variety of their expressive and graceful attitudes, their easy shape, and the beauty of their form, all breathe the pleasures of youth and love ; some crown with garlands the statue of the lascivious god, others—But we will draw a veil over this part of the painting, which the modesty of the painter has purposely placed in the shade.

The adjoining apartments are filled with paintings of less merit, if we except a grand composition by Paul Veronese, and a piece by Lanfranc.

The dining-room of the infanta is highly embellished by the indefatigable pencil of Luca Giordano, whose fertile imagination astonishes at first, but ends with fatiguing. In a cabinet adjoining to the dining-room are also some pieces by Rubens, and one of the best portraits of Titian ; that of Charles V., of natural size to the knees. An engraving was lately made from it by a young man of Madrid, named Selma, who promises to become an excellent artist.

I could yet mention many other paintings contained in the apartments lately occupied by the two Infants, brothers to the King, particularly some by Rubens, in which his

* This Infanta died in 1801 ; the simplicity of her manners and her benevolence have made her universally regretted.

freshness of colour, and his liveliness of fancy shine in their highest splendour; but I desist, lest I should fatigue my readers by a barren catalogue: I have already said enough to satisfy them that the collection of the King of Spain is one of the most valuable in Europe. It is true there are but few paintings of the French school, but the best productions of those of Italy, Flanders, and Spain are found in abundance; those of the latter especially, less known than they deserve to be, are worthy of all the attention of connoisseurs; the names of *Navarette*, *Alenzo*, *Cano*, *Lurbaran*, *Zerco*, *Cabezalero*, *Blas de Prado*, *Joanes*, &c., who among their countrymen enjoy a well earned reputation on many accounts, are scarcely known out of Spain. It is even only by hearsay that names much better known enjoy any reputation in France; such as *Rivera*, called there *Espagnolet*, who although a Spaniard born, belongs rather to Italy than Spain; *Velasquez*, remarkable for his correctness of design and perspective; and *Murillo*, one of the first painters in the world for the freshness and vivid colouring of his flesh, and his softness of expression; *Murillo**, whose productions for a long time sought after in France, at length occupy a place in the museum.

The chapel of the palace contains nothing remarkable of this kind, but its architectural proportions are exact and beautiful.

The palace of Madrid is entirely new. That which Philip V. inhabited having been burned, the monarch wished to have it rebuilt upon the same foundation. An architect from Piedmont laid before him a most magnificent plan, the model of which is preserved in a neighbouring building. Philip V. was deterred by the expence from carrying the plan into execution, and adopted one more simple, which, notwithstanding it already costs as much as that of the Italian architect would have done, is not yet finished. Two wings have been building to it for these twelve years past, which will give to the whole a less heavy appearance, but must hide the principal front.

One approaches towards this front through a large irregular square, at the extremity of which is the armoria or arsenal, which contains a curious collection of ancient and foreign arms, arranged with great order and carefully preserved. The most remarkable things here are neither cimiers set with diamonds, nor complete sets of armour of different Kings of Spain, not even that of St. Ferdinand; but those of the ancient American warriors. A long enumeration of all these curiosities is carefully made to the traveller, when he is admitted into the arsenal, and although he were a Frenchman, the sword worn by Francis I. at the battle at Pavia would not be forgotten. The Kings of the Austrian dynasty only inhabited the palace occasionally, which looked on the Manzanares, and which stood on the site of the new palace. They resided during a part of the year at a sort of country-house, situated on an eminence at the opposite extremity of the town, called by them *Buen Retiro*. Philip V. was highly partial to it, and made it his sole residence while at Madrid after the destruction of the ancient palace by fire. Ferdinand VI. had no other, and Charles III. passed the first years of his reign in it, greatly against the inclination of his Queen Amelia of Saxony, who was continually drawing vexatious comparisons between the magnificent horizon about Naples, which she had just left, and the naked and confined prospect of this residence. No royal abode had ever less the appearance of a palace than *Buen Retiro*; it is a deformed collection of symmetrical parts entirely devoid of any thing striking. It nevertheless contains a long suite of rooms, which might at a trifling expence be made inhabitable. The gardens, which they front, are without water, much neglected, and are now used as a public walk. There are a few statues worthy of the attention of the curious; that of Charles V. trampling upon

* In France, where almost all foreign names are disfigured, he is called *Morillos*.

a monster, which is supposed to be the emblem of heresy; and an equestrian statue of Philip IV. by an able sculptor of Florence. The palace of Retiro contained also many valuable pictures; but the greatest part of them have been removed to the new palace. The sumptuous apartment called the *Cafon* is remarkable for its ceiling, painted by Giordano. It is an allegorical representation of the institution of the order of the golden fleece.

I shall mention only two other paintings in this palace. One of Philip V. in years, seated by the side of his wife Isabella of Farnese, and surrounded by all his family. Charles Vanloo has perhaps displayed too much magnificence in the decoration of the hall; the figures he has painted have in consequence a paleness from the surplus of brilliancy in the furniture; nevertheless one cannot behold without interest an assemblage of so many persons who have filled eminent parts on the theatre of the world.

The other picture is less remarkable from the merit of its composition than from the scene it presents. This is a faithful representation of the last solemn *Auto da fê*, which was celebrated in 1680, in the Plaza Mayor of Madrid, in presence of the whole court of Charles II. The balconies appear full of spectators, excited equally by devotion and curiosity. The fatal tribunal is raised in the middle of the square. The judges there wait for their pale and disfigured victims, who, covered with melancholy emblems of the torments prepared for them, are about to hear their sentence. Some receive the last exhortation of the monks, others stagger and faint upon the steps of the tribunal. How many reflections naturally rush on the mind of the spectator;—but let us turn our attention from these afflicting objects.

The theatre of Buen Retiro is still in good preservation: the house is small but well contrived. The stage, which is spacious, opens at the bottom into the gardens of the palace, with which it is on a level; this is favourable to theatrical magic, when it is required to extend the perspective and permit the display of bodies of troops or a train of cavalry. All these illusions are vanished; the theatre is deserted, its decorations are covered with dust; and this theatre which in the reign of Ferdinand VI. resounded with the most harmonious voices, is now condemned to mournful silence, which has been but twice interrupted for these seven-and-thirty years.

Thus do courts change their appearance according to the taste of the sovereign. The brilliant taste of Ferdinand VI. naturalized in Spain the fairy scenes of the Italian theatre under the direction of Farinelli the musician, whose talents acquired him a distinguished favour, at which no person murmured, because he modestly enjoyed without abusing his good fortune. Under Charles III. Euterpe and Terpsichore lost their influence: this monarch, more simple in his manners, more uniform in his taste, and insensible to profane pleasures, banished them from his residence, and confined himself to the protection of the silent arts, the sciences, and virtue. A stranger to the tender passion; and although benignant, yet almost entirely insensible to friendship, during his whole reign of thirty years continuance, if the Marquis Squillaci be excepted, who was near being fatal to him, and an Italian valet de chambre (Pini), who yet never enjoyed but an obscure and subaltern degree of esteem, he had not one favourite; and protected from the seduction of the senses by his religious disposition, he passed twenty-nine years of his life (rare example among Sovereigns!) without either wife or mistress. In order to be admitted to the presence, the libertine was obliged to follow his pleasures in secrecy; so that never was there a court where less gallantry was displayed than at that of Charles III.

At that of Charles IV., less austere than his father, although pleasure be not expelled, it is yet entertained without parade; and if favour prevail, it is excusable, since it is nobly dispensed, exercised with benignity, and makes as few enemies as possible. This

court has a superiority over that of the preceding, by its confiding its principal trusts to the hands of Spaniards; even the Queen, although an Italian, has identified herself with the nation for a long time past; whereas in the three latter reigns strangers for the greater part filled all the offices of trust. This circumstance is of itself sufficient to hinder the explosion which other matters are calculated to promote. Finally, to complete the parallel of the four reigns of the House of Bourbon in Spain, (for I shall say nothing of that of Louis I., which did not last a year,) we shall observe, that they present the rare display of an uninterrupted succession of four kings, if not great, or illustrious for brilliant qualities, yet virtuous, humane, and sincerely pious; who may possibly have erred in their intentions of doing good, yet who never did intentionally wrong.

In the gardens of Buen Retiro the monarch has established a China manufactory, which strangers have not hitherto been permitted to examine. It is undoubtedly intended that experiments shall be secretly made, and the manufacture brought to some perfection, before it be exposed to the eyes of the curious. Its productions are to be seen no where except in the palace of the sovereign, or in some Italian courts, to which they have been sent as presents. Charles III. rendered their due homage to our manufactures when he excepted the court of Versailles from his distribution, notwithstanding the latter regularly forwarded some of the finest works of our Seve manufactory to the Princess of the Asturias. Louis XV. established this custom, on account of his grand-daughter, and his successor did not discontinue the practice.

Certain kinds of inlaid work which are not yet much known in Europe are wrought in the same edifice. Generally speaking, the Retiro, its apartments, and its gardens, are nearly abandoned by the court; in recompence, however, Charles III. has richly embellished the environs.

This ancient palace commands a public walk, which has long been famous in Spanish comedy and romance, *El Prado*. Its contiguity to the palace, its shades, the unevenness of the ground, every thing was favourable to intrigue, but every thing as well increased the danger; Charles III., by levelling it, by planting it with trees, and lighting its avenues, by providing for its being watered, and adorning it with fountains, some of which, that of Cybele, for example, is very handsome, made a superb promenade of it, and such as may be frequented at all times with pleasure and in safety. It forms a part of the interior inclosure of the city, and is in length about the space of half a league. Several of the principal streets terminate here. That of Alcala, the widest in Europe, crosses it, runs by the side of the gardens of the Retiro, and terminates at the gate of the same name, which, although somewhat heavy, is one of the finest pieces of architecture in the capital.

The inhabitants from all quarters resort hither on foot or in carriages to meet and breathe beneath the shade of the long alleys, an air freshened by waters spouted from the fountains, and embalmed by exhalations from the fragrant flowers. The concourse of people is frequently prodigious. I have sometimes seen four or five hundred carriages filing off in the greatest order, amid an innumerable crowd of people on foot; a spectacle which at once is a proof of great opulence and population. But a better taste were desirable in the carriages, and a greater variety for the eye. Instead of that motley appearance of dresses, which in other public places of Europe afford a change, without which there would be no pleasure, there is nothing seen in the Prado on foot but women uniformly dressed, covered with great black or white veils, which conceal a part of their features; and men enveloped in their large mantles, for the most part of a dark colour; so that with all its beauty, at the best it is but a theatre of Castilian gravity; this is the more apparent, where every evening at the first stroke of the *angelus* all those

who are on the walk, suddenly stop as if struck with palsy, pull off their hats, leave off in midst of the most interesting and tender conversation, and call home their thoughts a few minutes for devout contemplation. Woe to the wretch who should dare to disturb this silence of devotion, which the impious may ridicule, but which nevertheless possesses somewhat affecting, somewhat imposing event o the philosophical observer. The prayers of the *angelus* ended, the promenade is continued, and discourse is resumed. A whole unanimous people concludes, beneath the vault of heaven, its homage to the Creator. Of what consequence that it be through the intervention of the Virgin Mary, it is not therefore less pure, nor yields the mind a less sweet consolation.

The botanical garden adds not a little to the embellishment of the Prado; it was formerly upon the road which leads from Madrid to the castle of Pardo; but Charles III. a few years before his death removed it to the side of the Prado with a low inclosure, by which it is ornamented without being concealed; it is daily increasing in beauty. The botanist attached to the science, who readily obtains allowance to view the garden, may entertain himself here delightfully for hours in the midst of trees and plants from all the four quarters of the world. The productions of the vegetable kingdom are ranged in squares according to the system of Linnæus, and the names of the plants are inscribed on tickets enclosed in little tubes of tin stuck in the ground at the foot of each plant; a very commodious and useful means of reference to the beginner. The monarch of Spain it will be easily conceived must have within his power the means of collecting, particularly from the vegetable reign, the most precious collection; in whose vast states gave rise to this line of Piron,

“ The orb of day shines evermore on Spain.”

In so great a diversity of climates and soil, this immense monarchy must produce every tree, shrub, and plant which grows on the bosom of the earth. It is only within five-and-twenty years that the advantage which these possessions hold out has been put to profit. Galvez, upon his accession to the administration of the Indies, ordered all the officers in the civil employment in the colonies, the military, and the clergy to transport to Spain whatsoever belonging to the three kingdoms should be deemed worthy of attention. Not a year passes without producing the metropolis either some new plants from Spanish America or seed bulbs or slips which are reared in the botanic garden of Madrid. The young botanists employed by the court in Mexico, Peru, and other parts, accompany their exports with a description of the plants, which they make upon the spot of their growth; the soil that suits them, the kind of exposure which is most favourable to them, and the care which they require. Following these instructions the botanical professors and above all Don Casimir Ortega entrust the diminutive seed to its nurse; and surrounded by their young care contemplate with delicious anxiety the different stages of their growth as they trace the features by which they have been described. More than once have I attended their sitting's as instructive as they are amusing, in which nature is seen to prove here subjection to regular laws, and her disposition to make common to all mankind the advantages and pleasures with which she has overspread the earth, at intervals which stagger the imagination. Oftentimes at these meetings questions occur which are difficult of solution. Many a foreign plant demonstrates the insufficiency of the classes invented by our learned men in Europe, and sometimes it is impossible to give a plant its place without assigning it an arbitrary one.

What has been attempted with success in plants, I have frequently pleased myself with the fancy of having extended to the three kingdoms at one scope, by allotting all the

space which the botanical garden leaves vacant by the side of the walk to a destination certainly extraordinary in Europe, and which the monarch of Spain only could be capable of carrying into effect. I would have it divided into as many parts as this sovereign has principal colonies under his dominion; in these should be settled a family of Peruvians, another of Mexicans, another from California, another from Paraguay, from Cuba, from the Canaries, the Philippines, &c. All of them should preserve their peculiar dress and manner of living, each should have built a simple habitation upon the model of that they had quitted; and cultivate the trees and plants brought from their own country; so that surrounded by these pleasing illusions with greater reason than the young Polanore of Bourganville they might still suppose themselves in their native soil. With what delight would the curious of Europe flock in crowds to behold this living cabinet of natural history; this cabinet unique in itself, in which the objects of his attention would themselves be the *Cicerone* of the traveller. Here the Mexican would be seen beneath the shade of his fig-tree, shaking it and gathering the precious insects which colour our European garments; there the inhabitants of Guatemala would cultivate his indigo; and he of Paraguay the herb which constitutes his principal riches; the Peruvian, accompanied by the docile animal which partakes of his labours, feeds and clothes him, would in concert with the Luconian endeavour to introduce the same cultivation they had been accustomed to at home. Thus the exulting inhabitant of the metropolis, without going from the capital, might pass in review, as if delineated on a map, all the colonies to which his sovereign gives laws. The imported colonist would become accustomed to an exile, which every thing would concur to render agreeable; and his fellow citizens, separated from him by immense seas, informed by him of the benevolence and magnificence of their common monarch, would form a higher idea of his power, pride themselves upon being his subjects, become more attached to his government, and accustom themselves to see in the Spaniards of the old world, their countrymen instead of their oppressors; gently and pacifically effecting a revolution which might prevent or at least retard the misfortune and danger of a sudden separation.

Such a project may be considered as romantic, yet the King of Spain has entered upon one of the same kind, which proves his zeal for the advancement of the arts and sciences. In the street of Alcala is a large building in which the king has established a cabinet of natural history, and which already contains one of the completest collections in Europe in metals, minerals, marble, precious stones, corals, madrepores, and marine plants. The classes of fishes, or birds, and especially of quadrupeds, are yet very incomplete; but the measures taken by government will in a little time make them as complete as possible.

The minister in 1782 received an ample contribution from Peru: this was half the rich collection made during an eight years' residence in that country by Mr. Dombey, an able naturalist, whom the court of France, with the consent of that of Spain, had sent thither, and who brought back with him the fruits of his labor to Cadiz. On his arrival at this port he did not meet with that generous demeanour which is the boast of Spain. Malevolence, jealous of his mission, excited a persecution against him which injured his health, already impaired, and seemed for a short time to have even influenced his reason. He was as it were a prisoner at Cadiz till he gave up to the commissaries of government the moiety of his collection, which he had conceived was exclusively intended for his country. Fortunately these commissaries had less intelligence than ill will, and in the division which they made in the presence of Dombey, the lot which they fixed upon was not the most valuable of the two. He hastened, shortly after his departure,

ture, from a country which had treated him so inhospitably, and carried with him to France what he had been able to save from the rapacity of this invidious people. He confided to one of our first naturalists, his friend Mr. L'Horitior, the care of classing the rich remains of the collection, and making them known to the public. The health of Dombey never recovered from the shock it received, either in Peru, or at Cadiz; he died some years ago in the flower of youth, exciting the regret of all the learned, and the tears of friendship *. He left several Spanish naturalists at Peru, whose learned researches will greatly contribute to enrich the cabinet of natural history at Madrid.

The same edifice that contains this cabinet, and which with the custom-house, built also by Charles III., constitutes the principal ornament of the street of Alcala, is the place of meeting for the academy of the fine arts (*las nobles artes*); a circumstance which produced the inscription on the building, a motto equally happy and just:

*Carolus III. naturam et artem sub uno tecto in publicam utilitatem confociavit,
anno MDCCLXXIV.*

The honour of instituting this academy is, however, due to Philip V.; but Ferdinand VI. being particularly devoted to it gave it the name of his patron *San Fernando*; and Charles III. by providing a comfortable residence has made it much indebted to him. The Minister for foreign affairs is president, and every three years distributes premiums to the young students who have produced the best pieces in sculpture or painting, and the best designs in architecture. But though there are several members who have distinguished themselves in these three arts, it must be confessed that their works of real excellence are yet but very few in number, and that the prizes given are rather to be looked upon as encouragements than merited rewards. The Spanish court, however, maintains at Rome some young students, who give the most flattering hopes; and some of the members of the academy are employed by it on engravings of a part of the numerous master-pieces which embellish the different palaces.

It is not only by forming artists that the academy contributes to the progress of the arts in Spain, it is also the supreme tribunal, to whose decision the plans of all the sacred and profane edifices erected in the kingdom are to be submitted; an institution which, in the end, must establish a good taste upon the ruins of that barbarity which is but too visible in most of the edifices of former times, and of which traces still remain in some of the gates, in the ancient fountains, and in most of the churches in the capital; deformed efforts of art, then in its infancy, which has taken more pains to bring forth monstrous productions, than would be necessary at present to produce works of transcendent merit. Modern edifices already prove the revolution that has taken place under the house of Bourbon. Besides the new palace of Madrid, we may instance the gates of Alcala and St. Vicente, the custom-house, and the post-office: and particularly a superb building by the side of the Prado beyond the gardens of Buen Retiro began less than ten years ago. It is designed for a museum to which the cabinet of natural history is to be transported, and there several academies are to hold their sittings. The war interrupted the progress of the work for a time but on the return of peace it was resumed. This fine monument of architecture will be the most superb of any

* The two Spanish botanists who accompanied Dombey Don Hypolito Chens, and Don Joseph Pavon, published a work in 1794 under the title of *Flora Peruvienfis et Chilenfis Prodromus*, in which they give an account of the state of botany in Spain. Four years after their *Systema vegetabilium Flora Peruviana et Chilenfis* appeared; and in 1799 their large work in two volumes folio *Flora Peruviana et Chilenfis* which has excited the curiosity of the learned throughout Europe.

in the capital, and will add no small portion of fame to the reputation of the architect, Villanueva.

At Madrid, however, there are few handsome buildings, it is in general well laid out: the streets, although not in a direct line, are for the most part wide, and tolerably straight, it is three leagues and a half in circumference and about three quarters of a league broad at its widest part. The infrequency of rain, and the vigilance of the modern police, make it one of the cleanest cities in Europe. But except the Prado and its avenues, the city has no elegance to boast. The famous *Plaza Mayor*, which the Spaniards take so much pleasure in extolling, has nothing in it which justifies their partiality; it is quadrangular, but at the same time irregular, surrounded by buildings of five and six stories, sufficiently uniform, but without ornament, under which are long arcades. It is illuminated on public occasions, and then it really has an agreeable appearance. The *auto da fés* were formerly celebrated in this square, with all their terrible apparatus. It is still the theatre of those bull-fights which are called at the royal feasts *fistar reales*. The hotel de ville, or town-house, is in this square, in which the historical academies holds its assemblies, and in which is its library, its museum, its manuscripts, and its medals. Here also is the market for eatables and merchandize of every description. This concurrence of circumstances has made it the most remarkable public place in the capital, and has given it a reputation which, at the time it was first built, was perhaps deserved, but which must have vanished since architecture has improved in Europe, and produced forty squares preferable to the *Plaza Mayor*.

It was much disfigured by the fire which reduced to ashes seven years ago almost the whole of one of its sides. What tends to take off from its appearance, is a number of stalls which prevent one from crossing in every direction. It is nevertheless that quarter which gives the most favourable idea of the population of Madrid; and if we judge of it by the concourse of people upon it at all times of the day, and in the adjacent streets as far as, and including *La Puerta del Sol*, a street which is the resort of the newsmongers, one shall be led to imagine there must be a mistake in the enumeration of its inhabitants, taken at no more than 155,672 of residents according to the census of 1787. According to Thomas Lopez, who wrote in 1797, Madrid contains 7100 houses, 77 churches, 44 convents of friars, 31 of nuns, and 130,980 inhabitants, exclusive of the garrison, the hospital and the foundlings, the addition of which three classes of inhabitants will raise the population to nearly the amount of the census taken in 1787. Government has published a new census of Spain made in 1797, and which the official gazette announces as more exact than that of 1787 taken under the direction of Count Florida Blanca, with the principal results of which I shall present the reader*.

CHAP. IX.—*Population of Spain.—Principal Churches of Madrid.—Painters, Engravers.—the Press.—Religious Foundations.*

IN 1768 the Spanish government made a census of the people, which it had reason to look upon as defective; in the first place, on account of the want of care in taking it, but principally because it was imagined that it had for object the imposition of a new

* I am hitherto ignorant of the result of the census of 1797. The population of Spain will however hereafter be known as well as that of any other country of Europe. The rectors of parishes having been instructed to forward to government a monthly list of the deaths, births, and marriages within their different parishes, beginning with the present century.

tax on houses, which engaged a many to deceive the commissioners by false declarations; this first enumeration, therefore, produced for amount no more than 9,159,999 persons, whereas that of 1787, made with more rigour on the one part, and given with less apprehension on the other, gave a total of 10,268,150, the difference is an increase of 1,108,151.

The severity of government brought to light still greater deceptions. In 1787 there were found to be fewer than there were in 1768 :

Of nuns and friars	-	-	11,044
Ecclesiastics, and persons belonging to the clergy	-	-	17,213
Persons attached to different monastic institutions, and to the crusade	-	-	6,829
Hidalgos, or noblemen	-	-	242,205

Making a total of - 277,291 persons, who by pretending to titles, or by making false declarations, became ranked among the privileged class, and were thereby exempt from personal charges.

In 1768 the census was taken by dioceses, in 1787 by the means of the intendants of provinces. The annexed table will make the different results appear more clear :

Number of	Result of the census of		1768	-	of 1787
				-	
{	unmarried males, or widowers	-	2,809,069	-	3,162,007
	unmarried females, or widows	-	2,911,858	-	3,215,482
	married men and women	-	3,439,072	-	3,891,661
	Total	-	9,159,999	-	10,269,150
{	cities, towns, and villages	-	16,427	-	18,716
	parishes	-	18,106	-	18,972
	beneficed clergy, vicars, &c.	-	51,048	-	42,707
	convents for men	-	2,004	-	2,019
	----- women	-	1,026	-	1,048
	monks	-	55,453	-	57,515
	nuns	-	27,665	-	24,559
	persons attached to the clergy	-	25,248	-	16,376
	syndics of religious orders	-	8,552	-	4,127
	persons subject to the military tribunal	-	89,193	-	77,884
	persons pensioned by the King	-	27,577	-	36,465
	----- dependant on the Crusade	-	4,248	-	1,884
	Inquisition	-	2,645	-	2,705
{	hidalgos, or noblemen	-	722,794	-	480,589

By means of this census, the proportion which the number of the different professions bore to each other was known. They were

145 cities, (*ciudades*,)
 4,572 towns, (*villas*,)
 12,732 villages,
 907,197 husbandmen,
 964,571 journeymen,

270,989 tradesmen and artisans,
 280,092 servants,
 50,994 students,
 39,750 manufacturers.

The population of the different provinces was at the same time ascertained, and what was only suspected before became apparent ; that is, that the resources, which the neighbourhood of the sea affords, added to the quality of the food, which it produces, where the soil is fruitful, are sufficient in themselves to counterbalance the evils of a bad administration ; since Galicia, the clergy in which possess more than half the lands, notwithstanding it be destitute of canals and navigable rivers, and possess scarce any roads ; notwithstanding its whole reliance be on its manufactories of linen, its trade, and its fishery ; yet blest with a soil capable of receiving every species of culture, situated so as to have the sea on its two sides, and free from that devastating scourge the *Mesta*, Galicia is beyond comparison the best populated province in Spain, although it be far from having an equal extent with others. In 1787 it contained 1,345,803 inhabitants, while Catalonia, far more industrious, and of nearly double the surface, comprised but 811,412, Arragon but 623,308, and Estremadura, one fourth part larger than Galicia, no more than 417,000 persons.

To return to Madrid ; as to its population, it has ordinarily from 6 to 10,000 men in garrison, is the rendezvous for petitioners from all parts of Spain and the Indies, as well as of a great number of strangers ; hence it may not be considered an exaggeration to compute its inhabitants at 180,000.

Its sacred edifices have nothing in them very remarkable, although the Abbé Pons has devoted a volume to the description of them ; several, however, contain highly valuable collections of pictures, which may be seen with admiration even after the paintings of the Escorial, and the new palace. The small church of St. Pasqual, upon the Prado, within its narrow and dirty walls contains two Titian's, several paintings by Spagnoletto, one of the best of Bassano, two by Guerchin, &c. The church of St. Isabella has also some master-pieces of Spagnoletto, particularly the assumption of the chief altar, a capital piece which has been engraved ; but no church at Madrid has a larger or better collection than that of the barefoot Carmelites, in the street of Alcala. How frequently have I been to the large vestry of these monks, who are the most opulent in Madrid, to *reckon, admire, and envy* treasures so ill appreciated, and so badly placed ; numerous paintings of Spaniards, so little but so much deserving of being known, such as Zurbaran, Zurriz, &c. ; others by Spagnoletto, Murillo, Giordano ; Charles V. haranguing his army, by Titian ; a Lord's supper, by Vandyck ; many by Rembrandt, particularly a Tobit, seated and pensive, in which the only light of the piece proceeds from a dull fire to which he is turned. Excepting on account of their paintings, these three churches possess little claim to notice. Bad taste reigns throughout them, as is the case in almost all the religious edifices of Madrid. The church of St. Isidoro alone, which heretofore belonged to the Jesuits, has a portal which is handsome, although not exempt from faults. Its interior is not destitute of beauty, and, among other paintings rather common, it contains a large one by Menfy, and an adoration by Titian.

There is another church much more modern, which, on account of its mass, has a venerable appearance, and has some valuable paintings : it is that of St. *Salvas*, or the visitation, founded by Ferdinand VI. and the Queen Barbara his wife. The ashes of this royal pair repose here, under two pompous mausoleums. On that of the King, an inscription in Latin, which appeared to me a model of the lapidary style ; the Spaniards themselves

themselves have expressed their disapprobation of the whole edifice by these words : *Barbara reyna, barbaro gusto ; barbara obra* ; a play upon words which has effect but in the Spanish language, in which the expression *barbara* is equally applied to the name of the foundress, to the bad taste of the edifice, and to the enormous sum it cost in building. It has, however, one laudable appendage, a certain number of young ladies are there educated at the King's expence ; it forms a part of the seminary for the nobility, a kind of military school which has been for some time back under the direction of Don Jorge Juan.

And lastly the convent of St. Francis has been some years building at an immense expence, and there were hopes that it would become one of the finest productions of architecture in the capital. It is lately finished, and is rather a solid than an elegant edifice. The church, in the form of a rotunda, ornamented with pillars, is yet a striking object at first sight : the best masters in Spain were employed on paintings for its altars, for the most part the pupils of Mengs ; M. Maella and M. Bayeux, otherwise called *El Aragones*, for example, who, by their taste and colouring, in some manner recompense the Spaniards for the loss of that great painter. The other co-operators were *Don Antonio Velasquez*, *Don Andres de la Calleja*, *Don Joseph Castillio*, *Don Gregorio Ferro*, who excels in copying the best paintings of the most esteemed artists ; Don Francisco de Goye * merits also by his talents an honourable mention ; he portrays in a pleasing stile the manners, customs, and games of his country ; neither must *Carnicero* be omitted in the list, a copyist in miniature, possessed of much taste, and who faithfully imitates the master-pieces with which the King furnishes his smaller apartments. Nor need the genius of design disdain the names of *Don Ventura Rodriguez*, *de Villeneuve*, *d'Arnul*, a Frenchman by birth, and *Don Francisco Sabattini* †, an Italian, director of the King's buildings ; all of them eminent as architects.

In the art of engraving, they have several who excel ; Don Salvador Carmona, married to the daughter of Mengs, who has in part inherited the fine pencil of her father, is deservedly to be placed at their head. Mr. Carmona is advantageously known in France by several prizes gained in the academy of painting. Were we to criticise with *acumen*, it might be observed, that his talents too little, or at least too late encouraged, have not produced altogether what they at first promised. Several other engravers, Messieurs *Ferro*, *Muntaner*, *Fabregat*, *Ballester*, and especially M. *Selma*, have, by happy efforts, proved that their art still makes some progress in Spain.

The academy of the Spanish language, which in the year 1780 gave an elegant edition of Don Quixote, in four volumes, quarto, enriched it with the embellishments of the engraver. But the engravings, for the most part not above mediocrity, do not answer to the merit of the edition, equally admirable for the quality of the ink, the beauty of the paper, the clearness of the character, and deservedly ranked with the finest productions of this kind in any other nation. It is of itself sufficient to give celebrity to the press of Ibarra ; it is truly a national work, by which the Spaniards have refuted the charge of the arts with them being yet in their infancy. The ink is a composition made by Ibarra himself, to whom our printers have frequently applied in vain for the secret ; the characters were cut by a Catalan, the paper was manufactured in Catalonia, the learned preface and the analysis of Don Quixote, placed at the beginning of the work, are written by a

* Goye excels also in portrait painting, as well as *Acicene* and *Esfore*. In historical painting *Don Francisco Rumis* justifies the hopes formed of him by the paintings which five-and-twenty years ago he sent from Rome to the academy of the fine arts at Madrid.

† He, at the same time, was chief of the *Corps de Genie* ; he died lately, and has been succeeded in this latter appointment by *Don Joseph de Urrutia*, the general who last commanded the army in Catalonia.

member of the academy of the Castilian language, *Don Joseph de Guevaru*; the binding even, although inferior to the rest, sufficiently demonstrates that the Spaniards are by no means behindhand in any thing which relates to typography.

This is not the only proof they have given of their ability. Every connoisseur is acquainted with, prefers to the editions of Baskerville and Barbou, and reckons equal to the works of Didot, the Sallust, which the Infant Don Gabriel has translated into his own language; and some other works from the presses of Ibarra at Madrid, and from those of Benedict Montfort at Valencia, such as Mariana, Solis, Garcilaso, the poem on music, *El Parnasso Espagnol*, by Sedano; and, above all, the master-piece of Benedict Montfort, that learned work of Bayer, the preceptor of the Infant Don Gabriel; entitled *De Nummis Hebræo-Samaritanis*, 2 volumes, in folio.

Latterly the Spanish artists have been employed in multiplying, by the means of the graver, the portraits of a score of illustrious persons, kings, generals, famous writers, &c. and many grandees of Spain, who have galleries of paintings which were lost to the world, and to the arts, have had engravings taken from them.

But if the pleasing arts be cultivated at Madrid, the most useful of all, that of beneficence, is not neglected. Charitable foundations, worthy models for every nation, are found in that city; among those two brotherhoods whose funds are consecrated to the relief of misery; a public pawn shop, at which money is lent to the necessitous, and which in the period between 1724 and 1794 (72 years,) had advanced 111 millions of rials; a receptacle for orphans; and, above all, three hospitals which annually receive from nineteen to twenty thousand patients*. The principal hospital near to, but on the outside of the Atocha gate has been lately rebuilt. It is a large edifice, which by no means disgraces the walk leading from this gate to the canal of Aranjuez, and which the Spaniards have estimated rather too highly in honouring with the name of *Las Delicias*.

CHAP. X.—Other Academies.—Fate of the new Encyclopedia in Spain.—Apology and literary Title of the Spaniards.

THE Academy of the Fine Arts is not by many the only one that Madrid contains. It may even be said, if the number of literary institutions were the measure of progress in sciences, this capital ought to be considered one of the most enlightened and learned in Europe. There is an Academy of Physic; an economical society of the Friends of their Country, to which is annexed a (*Junta de Signoras*), a junto of ladies impressed with desire of signifying their affection towards the public good, and some other insignificant juntas, as little worthy of notice for their titles, as for the advantage derived from them, and whose existence serves only to shew, that a patriotic zeal has infused itself latterly into the minds of people of all classes; one of *Spanish and general law*; one of *theoretical and practical jurisprudence*; one of the *canons of the church*; one of *civil, canonical, and patriotic law*; the *Latin Academy of Madrid*, &c. &c. But the only ones deserving of particular mention are, 1. The *Academy of the Spanish Language*, founded by Philip V., and which the French Academy has constantly looked upon as its sister. On the appearance of the very first edition of its Dictionary, it was allowed by the most eminent grammarians to be the completest work of the kind which ever appeared in any

* The *general hospital*, which is for men, in the course of the year 1801, admitted 14,254 persons. The hospital *De la Pasion*, (for women) 5,297; and that of *Sant Juan de Dios*, for both sexes, 3,271; total 22,809 persons.

language. The Academy has instructed its Librarian, the Abbot Marillo, to condense it into a single volume for common use.

This Academy is composed of twenty-four ordinary members; but the number of supernumeraries is not limited; the president is a grandee of Spain. The present is the Marquis de Santa Cruz, the governor is the Prince of Asturias. But few examples, however, tend to shew that it considers itself honoured by the admission of nobility. The Spaniards do not require a revolution to teach them that high birth should not be a substitute for personal merit. As well as other nations, Spain has its unqualified persons, perhaps in greater number, but such are kept in their due stations, that is to say, are unregarded. 2. *The Academy of History* was founded and endowed by Philip V. in 1738, its first president was *Don Augustin Montiano*, a distinguished literary character but little known out of Spain; its present director is the Count de Campomanes*, who, by the rank he holds in the magistracy, as well as by his great erudition and virtues, is one of the most distinguished nobleman of modern Spain. He was ever one of the most attentive members of this academy, even at times when his various occupations left him the least leisure for application.

The Spaniards have always been greatly partial to the study of their own history; it scarcely contains a city which does not possess its individual history or a chronicle. Of late they have reprinted their best historians, and within these twenty years have published editions of several authors; among others, for the first time, several works of Sepulveda, particularly that entitled *De rebus gestis Caroli V.* It has for these five-and-twenty years been employed on a task equally interesting and arduous, that of publishing all the ancient chronicles relative to the history of Castile. Several of these works had never been printed; all are enriched with notes and commentaries, which at once prove the sound criticism and the erudition of their authors, the chief of which are Don Francisco de Cerda, Don Miquel Florez, Don Eugenio de Laguno, and several other members of the *Academy of History*.

The academy contains one of the most valuable collections of which a literary society can boast. This is all the diplomas, charters, and other documents given, since the earliest period of the monarchy, to every city, borough, community, church, chapel, &c. in Spain; the whole collected with the greatest care, arranged in chronological order, and consequently adapted to furnish every branch of the Spanish history with the most abundant source of authentic materials. It is in this immense repertory that the academicians have collected the elements of a work which is recently published, and which has already run through several editions, *A Geographical Dictionary of Spain*; it has had some considerable additions made to it, the last volume of which appeared in June 1796. Others, among which are the librarians themselves, have undertaken to give to the public a catalogue of the Greek manuscripts in the library of Madrid. One of the most learned among them, Don Juan Iriarte, died in 1776, leaving behind him three nephews of distinguished abilities; one of them, *Don Thomas*, died a few years ago a great literary character; a second, *Don Domingo*, after signing the peace of Basle, went ambassador to France, where he died much regretted, as well by his country as by the friends he had acquired among the French; the eldest, *Don Bernardo*, is still living, and divides his time between the arts and his duties in administration.

* He has for some years back resigned all such situations as require application, and, a member of the council of state, peaceably enjoys the esteem which he has so well merited; his country, to which he was an honour, as well on account of his virtues as his talent, was for a long time much indebted to him; so that he became justly entitled to spend the remainder of a life so well employed.

To Father Florez, a monk, Spain is also indebted for several volumes of ecclesiastical history, which in his hands was, in truth, only an irregular compilation, but it has acquired a more pleasing form under the management of his continuator, Father Risco.

Several other writers, well acquainted with what relates to their country, are employed in giving a clear history of it, and instructing their fellow-citizens in matters of policy, and the science of government. They have naturalized in their language such French and English works as the Spanish orthodoxy would permit; not only those, for instance, which treat of trades and arts, but also works of literature and philosophy. It is twenty years since they began the translation of the works of Linnæus, and the natural history of M. de Buffon. At present their literary characters are more than ever given to translations, but shew a deficiency of judgment in the choice of their subjects. While they select *Clarissa Harlowe*, they adopt at the same time our most insipid romances; they place beside the *Philosophical Essays of Maupertuis*, the works of *Bernardin de St. Pierre* and *Condillac*, our most insipid books on ascetics. They have even attempted to make the Spaniards acquainted with the *Philosophical History of the Abbot Reynal*; a work which gave rise to so much indignation in the Spanish government, that I have more than once been witness to the minister for the Indies, Galvez, entering into a paroxysm of rage at the bare mention of the author; looking upon such as attempted to introduce in a contraband manner the copies of this work into the Spanish settlements in America as guilty of treason. The Duke d'Almodovar *, one of the grandes of Spain who cultivates letters, (few are the number of his rank that do,) has given less a translation of it than an extract, in which he has taken pains to omit whatever might be obnoxious to superstition and despotism, rectifying at the same time a number of errors relative to the Spanish colonies into which the abbot had fallen. A short time before, the *Dictionnaire Encyclopédique* was undertaken, to be translated by subscription; and the world was not a little surprised to see the name of the grand inquisitor at the head of the list of subscribers. Towards the close of my first residence in Spain, there was a very numerous list of subscribers for the *New Encyclopédie*, with the subjects classed under distinct heads; but a Frenchman, writer of the article Spain in the section on geography, wantonly vilified a whole nation, which its weight in the balance of Europe, and its intimate connexion with our own, ought to have made respected. The Spanish government resented this insult, and the French court determining to redress its complaints, the author, censor, and printer were severely reprimanded; and the publication of the *New Encyclopédie* was suspended in Spain by order of the court. The Spanish minister, however, though offended, was not desirous of excluding knowledge, and soon afterward revoked the suspension, at the same time he took measures to erase the errors and invectives from a work of which he knew the merit, and subjected the numbers before they were distributed to the subscribers to the examination of the council of Castile. The council in consequence nominated a committee for examining the books as they appeared; a ceremony which greatly retarded the work in the first instance, and the commissaries not having either leisure, inclination, or the requisite intelligence for such a task, three hundred subscribers long awaited their decisions in vain. The matter became worse when the holy office, following the suggestions of intrigue, even more pertinaciously than those of religious zeal, produced new obstacles to the delivery of the parts; first, by forbidding the agent whom Panckoucke had sent to Madrid receiving any new subscriptions; afterwards, by extracting an engagement from him to deliver

* In the reign of Peter III. he was the representative of Spain at the court of Russia, afterwards went ambassador to Portugal, and lastly to England, where he continued in that capacity up to the period of Spain taking part in the American war; he died lately.

no further copies ; and, lastly, by seizing on all they found in his possession. The ruin of this citizen, and a consequent pecuniary injury of considerable magnitude to Panckoucke, were the result of these violent measures. The stormy times during the revolution, and the war engendered by them, have prevented the injured parties from obtaining a reparation for their losses. Peace now happily restored allows the hope of retribution.

Throughout this matter the Spanish government has to reproach itself on more than one account. Was it necessary that it should interfere in a matter entirely of a literary nature, and take offence at the inculpations of ignorance ? Is the fame, the honour of a nation at all compromised by the insulated assertions of an obscure individual ? By displaying authority in similar cases, calumny, so far from being refuted, obtains additional force, or at least additional publicity. Spain should have left to her learned men, to her writers, the task of demonstrating to the world that she was not so destitute of intelligence, not so barren of titles to the esteem and gratitude of Europe, as Maffon de Mervilliers had affirmed. Thus it is that a great nation shews its vengeance. Such an example has long been held to view by the English and French. Not only do they themselves even in the time of peace treat each other with severity, strangers as well are frequent in lavishing on them the most bitter railing and invective. Their governments, however, have never felt disposed to make affairs of state of these national animosities. A noble pride, the conviction to the mind of inherent worth should be sufficient to make every one impenetrable to similar attacks ; and surely the Spanish temperament is of a nature to be safe behind this rampart. It was not requisite for their court to appoint defenders. The Abbot Cavanilles *, who had been at Paris for several years, spontaneously undertook the defence of his country against the shafts of this imprudent journalist ; but his countrymen themselves determined that through excess of zeal he had overshot the mark. He was still more prodigal of praise than his antagonist had been of reproach. The one allowed nothing, the other laid claim to every merit ; so that to sustain his assertions, he was obliged to cite a long catalogue of learned men and artists, the major part of which were unknown even to the Spaniards themselves.

Another apologist has more recently ascended the stage to defend his country, not with less warmth, but in a more specious manner, and has sent me his manuscript.

In this he takes a view of the different branches of science and literature, and proves that Spaniards are ignorant of none. Above all he particularly vaunts of their military skill. The works of the *Marquis de Santa Cruz* †, says he, are they not translated into all languages ? Do not Frenchmen themselves quote the treatises on artillery of *Louis Collado* and *Christopher Lechuga* ?

The enquiry of Maffon de Mervilliers, *What does Europe owe to Spain for two centuries past, nay for four, for these thousand years ?* enrages beyond measure my anonymous correspondent. And thus he answers him : “ Has he then forgot ? No, he never can have known, this ignorant Frenchman ! He never can have known how Ferdinand the catholic drove the Saracens from Grenada ; that Isabella patronized the discovery of the New World ; that Charles V. triumphed at Pavia, while Magellan was penetrating the Straits

* This is the same person who is favourably known to the world of late by some estimable works on botany.

† For a specimen of the generalship of the Marquis de Santa Cruz, see the account of an expedition to the islands of *Tercera*, under the command of the Commander *De Chasse*, which forms a part of this work. With a thousand Frenchmen he made head during a whole day against thirty thousand men under the Marquis, and actually dispossessed them at last of a post they contended for, and maintained it the whole of the succeeding night.—*Translator*.

which bear his name, and taking observation of the coasts, the rivers, and parts of South America? that *Cano*, first of all, made the tour of the world, and certified its figure and extent? that Cortez, in Mexico; that Pizarro, in Peru, fought, conquered, and secured to Europe the valuable productions of both Americas; that the domestic animals which so prolifically abound in those regions were carried there by Spaniards; that they introduced there the use of iron, and taught all those branches of industry of which the present colonists reap the benefit; that they analyzed the productions of those countries; they established the culture of sugar, source of such advantage to French and English commerce; they extended that of cocoa, of indigo, of cochineal, of tobacco, of cotton, and proved the value of bark, of balsams, sarsaparilla, and a multitude of other salutiferous productions of nature?

“ In the middle of the sixteenth century, when some triumphed at Lepanto under Don John of Austria and Bazara, others penetrated to the Philippines; while these coasted along the shores of California, certifying it to be a peninsula, and discovered New Mexico, those again were traversing the vast extent of South America.

“ They caused their religion, their manners, and their language to be adopted by millions of inhabitants, and made them agriculturists, artisans, and soldiers, patriotically identifying them with the metropolitan country; while the other nations of Europe taught the Indians what they discovered, the baneful use of arms and strong liquors, establishing no other than a paltry traffic for skins; and fitted them by their lessons, and by their example, to become like themselves perfidious.

“ Compare with the state of these Spanish colonies, the object of so much declamation, the miserable situation of Cayenne; that of Louisiana also, (notwithstanding the monstrous conceptions of the French,) at the time of its cession to Spain. And shall the English be quoted as a model for us? Have they, in their usurpations on the shores of Campeachy and Honduras, done aught towards civilizing the inhabitants? Have they at all increased their happiness? No; they have scattered them abroad, sunk in barbarity, and shewn them no other example than that of piracy and smuggling. And further, although at present Surinam has attained a certain degree of prosperity under the management of the Dutch, how stands the rest of Dutch Guiana?

“ Nevertheless, these are the most industrious, the most powerful, the most commercial nations of Europe: behold their achievements for the welfare of the two continents! These English, these French, these Dutchmen, had they a greater right than we to the colonies which they subjected? and how have they treated them? Where are the Caribs of their Antilles? Have they been more disinterested, more humane than Spaniards? Are they not highly fortunate in profiting by the successes of the brutal Buccaneers? What cruelties have they not been guilty of in the East Indies, in order to secure to themselves, not only the trade and industry of its inhabitants, but even their persons, which they have enslaved? Neither are these adventurers, whom a nation disavows, that are guilty of such horrible acts. No; they are traced by the finger of the most able politicians in the most enlightened age, and in the country of Milton, of Newton, of Montesquieu, and of Dalember.”

Thus it is the anonymous writer answers the charges of Maffon Mervelliers, and the numerous declamators who spake by his mouth. But what do these recriminations shew? Go they farther than to demonstrate, that not any of the modern nations can throw the first stone, where the charge is the crookedness of policy, or the shameful abuse of power? They certainly decide nothing in favour of Spain as to her progress in civilization, in science, or in letters. The Abbot Cavanilles enters the lists to combat the charge of deficiency in these. Has he proved victorious?

Two other Spaniards have lately run over the same course, which they have made by much longer than the matter would seem to furnish ground to. Lampillas has consecrated six volumes to the enumeration of the treasures of modern Spanish literature; and Don Juan Sempere has published, in six volumes in octavo, a work entitled, *Specimen of a Spanish Library of the best Writers in the time of Charles III.* Would not one conceive, on hearing the titles of these two books, that the Spanish nation was vastly fertile in great writers; the most learned, the most enlightened, among all the states of Europe? The truth is, in this instance, met with, where in discussions it is usually found, between the exaggerated inculpations of the French author, and the vain and pompous assertions of his antagonists. Doubtless there are in Spain more learned men who modestly cultivate the sciences; more men of erudition who are thoroughly acquainted with the history and jurisprudence of their country; more distinguished men of letters, and a greater number of poets, possessed of energy, and a fertile and brilliant imagination, than is generally imagined; but, according to the Spaniards themselves, the present state of letters and the sciences are far from what they were in the times of *Mendoza, Ambrose Morales, Herrera, Saavedra, Quevedo, Garcilaso, Calderon, Lopes de Vega, Villegas, Cervantes, Marina, Sepulveda, Solis, &c.* The Spanish universities can no longer boast the reputation they formerly possessed; industry and population are much inferior to what they were under Ferdinand the Catholic, and his two successors.

The three last monarchs have been zealously and successfully employed in endeavouring to revive those happier times; but frequent wars, the disorder of the finances, and other more active causes, have allowed of but feeble encouragement, and produced but a tardy progress. Knowledge, however, is much more diffused than it was fifty years ago; the reign of Charles III. produced distinguished persons in various branches of the sciences and literature: such as Father *Feijoo*, known from his *Theatro Critico*, in which he has begun to familiarize the Spaniards with a just mode of thinking, and to bring them to hazard the bold flights of philosophy.

Father *Sarmiento*, author of several good critical works.

Don Jorge Juan, a skilful mathematician, and particularly well versed in ship-building.

Don Juan Yriarte, famous for several literary works, which do honour to his learning and his taste: these four died about five-and-twenty years ago.

And among those which Spain has lost more recently:

Father *Isla*, a Jesuit, author of several pieces full of wit and philosophy, among which his *Fray Gerundio* will long be celebrated; in this he has shewn himself among bad preachers what Cervantes formerly was to knights errant.

Don Francisco Perez Bayer, governor of the Infant Don Gabriel, has enriched literature with many works replete with erudition; besides these, many poets, who, if they have not possessed the strength, and fecundity of their predecessors, have yet evinced a taste to which they were strangers; such as *Cadabalso, La Huerta, Don Thomas Yriarte*, known abroad as the author of a celebrated poem on music, and some entertaining fables.

Among the living, the *Count de Campomanes* deserves particular mention as a learned historian, a well informed lawyer, and one of the first among the Spaniards, who by his writings has awakened the attention of his countrymen to the means of refuscitating industry.

Cardinal Lorenzano, formerly Archbishop of Toledo *, a prelate as enlightened as beneficent.

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* He is no longer such. Towards the end of the reign of Pius VI. he was delegated to this pontif, in order to console him under his misfortunes, as a public testimony of the lively interest which his Catholic Majesty

The Chevalier Azara, so well known to all those whom an attachment to the fine arts entices to Rome; the elegant editor of the works of Mengs, whose friend he had been, and who has lately given a most excellent translation, in four volumes, of the life of Cicero by Middleton, ornamented with a preface, and some engravings from his cabinet of antiques.

Don Joseph Guevara, *Don — Murillo*, *Don Francisco Cerda*, and several other learned men, who well deserve to be better known.

Don Eugenio Izquierdo, a naturalist, highly esteemed by our learned characters; and who at present is the director of the cabinet of natural history.

Don Casimir Ortega, botanist, member of the Royal Society of London.

Don Antonio Joseph Cavanilles, another botanist, better known abroad than the preceding; who published in 1791 a first volume, and in 1794 the third of a work entitled, *Icones et Descriptiones Plantarum quæ, aut sponte in Hispaniam crescunt, aut in Hortis hospitantur*; in which are described and delineated one hundred and thirty-six plants of the botanic garden, fifty-six of the kingdom of Valentia, and a great number of the vicinity of Madrid.

Some comic and tragic poets, of whom we shall speak in our description of the theatre; and a number of authors of light poetical pieces.

Literature is generally much more cultivated in Spain, particularly of late, than what is commonly imagined. Although not yet released entirely from their shackles, they are not without means of learning what passes in their own country as well as abroad. At the beginning of our Revolution, and even during the war, they were very anxious to obtain our newspapers, and in spite of all interdict obtained them. They themselves possess some periodical works.

Besides the court gazette, published twice a week, in which a very succinct account is given of all new works, they have *Uno Mercurio historico y politico*, which for a long time has made its appearance monthly, and presents a tolerably impartial account of political events.

They have another work totally of a literary nature, which, since 1784, has been published almost uninterruptedly once a month, under the title of *Memorial literario*; the author *Don Joachim Ezquerra* gives in it an interesting account of all new productions, besides several pieces on morality, literature, political economy, and even on philosophy.

The Spaniards had for a long time possessed a periodical work, called *El Espiritu de los Diarios mayores de Europe*, which in 1798 was succeeded by *Las Anales de Literatura, Ciencias y Artes, o miscellanea, instructiva, y curiosa*; which contains extracts from the best foreign journals, and many original pieces on statistics and geography.

On the same rank may be placed a journal modelled after the Spectator, which is printed monthly from 1795, named *Seminario erudito y curioso de Salamanca*.

Were I to detail the whole of their periodical works besides the *Mercurio historico y politico*, a monthly journal for external politics, and *Las Corres mercantes de España y de ses Indias*, which since 1792 is published weekly; I should have to mention a number of newspapers and journals published at different cities in Spain, but which have little interest out of that kingdom.

Majesty felt for his concerns. Cardinal Lorenzano remained with him up to the period of the Pope being transported into France. After that period he continued to reside in Italy, furnishing a proof, that the unexpected mission which removed him from his benefice was not occasioned wholly by an inclination of sending a comforter to the Sovereign Pontif. The archbishopric of Toledo has since been given to the Infant Don Lewis, called the Count de Chinchon.

It must be allowed that Spain has generally very useful and very complete works, on what regards their own country.

This valuable dictionary of their language has before been noticed ; they have as well an excellent *Grammatica Castellana*, the fourth edition of which was published by the academy six years ago.

They are now actually employed in reprinting their last national works, particularly *La Bibliotheca vetus Hispanica*, and the *Bibliotheca nova Hispanica*, by *Nicholas Antoine*, two works in high esteem among the learned, and of which a new edition has recently been published.

Their *Geographical Dictionary* of Spain, by *Monpalau*, considered a complete work, has already run through four editions.

Their *Maritime Spanish Atlas* comes nearer to perfection than any maps of the interior of Spain ; for that published by *Don Thomas Lopez* in 1792 leaves much to be wished for, as I had more than once occasion to notice in my long excursions, some time after its publication. The Spaniards, best acquainted with their country, have, however, assured me, that the map of the Asturias is delineated with the most exact nicety.

In 1784 there appeared a publication, entitled *Historia Critica de Espana*, by *Fray Masden*, who, notwithstanding his being a Catalan, wrote it in Italian, from which language it has been translated into Spanish. This work, which begins with the earliest known time, is full of learned and curious researches, and displays much erudition and sound criticism.

This praise is especially due to the Brothers *Mohedano*, two friars of great sense and intelligence, but warped a little by their enthusiastic bias towards their own country. The work is called *La Historia literaria de Espana* ; it was begun in 1779, already in 1786 had nine volumes in quarto been given to the public, when, displeasing the Holy Office, it prevented its continuance.

A work less pleasantly indited, very diffuse, but more useful, has been published by *Don Eugenio Laruga*, which has extended to twenty volumes, *Memorias politicas sobre la Industria, las Minas, &c. de Espana*. This work contains the most circumstantial details on the productions of the soil, and the manufactures of every description in all the provinces of Spain. It serves to prove, that the Spaniards of the present day are acquainted with their natural riches, and the utility of labour ; as well that they are employed in augmenting and putting them to profit.

Most of the patriotic societies likewise publish interesting memoirs upon the same subject, and assist in establishing their experiments.

The taste for arts and sciences has spread from the capital to the provinces. Seville and Barcelona have each of them an *Academy of Belles-lettres* ; Saragossa and Valencia an *Academy of the fine Arts* ; Valladolid one of *geography and history* ; and Grenada one of *mathematics and drawing*.

CHAP. XI.—True state of Literature in Spain.—Education.—Manufactures.—Roads.—Canals.—Patriotic Societies.

THE preceding chapter has displayed the title of the Spaniards of the present day to literary fame. It will, perhaps, be sufficient to clear them from the imputations of idleness and ignorance.

Yet let us not exaggerate ; their literature is very barren in many respects. They possess some works relative to the progress of the arts, such as that of dyeing, the

veterinary * art, &c.; an elementary treatise on mathematics, by Joseph Radon; a summary history of Arragon up to its reunion with Castile; a chronological history of the Spanish nobility; literary notes on Spain, by Mandel; numerous translations from the Latin, Greek †, English and French; some romances, at the head of which are deserving to be placed three, published by an ex-jesuit retired to Italy since the extinction of his order, Father Montenjon; called *El Antenor, o de la Crianza de un Principe* (on the education of a prince;) *La Eudoxia*, on the education of a woman: and *El Eusebio*, a work in five volumes in many respects resembling the *Emilia* of Jean Jaques Rousseau; but not one single work truly philosophical; although to make amends they have an immense number of books of piety, both original, and translated. This is the sum of the modern productions of Spanish literature.

It must be owned: great obstacles even yet oppose the ambit of this aurora of the arts and sciences, and prevent the lustre of meridian day, which has been looked for from the beginning of the present century.

1st, Those who apply themselves to the study of them, do not yet enjoy that consideration so necessary to the natural encouragement of genius.

2dly, They still meet with too much opposition from fanaticism, and its hirelings; less disposed certainly to persecution than it has been in former ages; but its silent presence, in its numerous adherents, is in itself sufficient to extend the sovereignty of religious terror much beyond the sphere of its activity.

3dly, Education is yet much neglected; or what is worse than neglect, the rising generation is taught erroneous principles, and imbibe prejudices which make abortive the happy conceptions of nature, perhaps of greater promise among the Spaniards than any other nation. Will it be credited that the expulsion of the Jesuits has only tended to pejorate this essential branch of administration? At the period when this took place the inconvenience of confiding youth to the care of religious orders was, perhaps, too much magnified. That of the Piarestes, known in Spain by the name of *Escolapios*, is the only one which is left in possession of some schools, and these are among the best or rather the least bad. The place of the Jesuits has been supplied by professors, who may either be ecclesiastics or lay persons, but who form no collective body nor reside under the same roof. The Jesuits, besides the property of the society, had foundations for different professorships. These are the only funds appropriated to the support of the new professors. They were sufficient for monks living in a community, but are very inadequate in the present state of things. Professorships so little lucrative cannot be sought after by persons eminent for learning and talents. The education of youth suffers therefore by the change and this is a circumstance of sufficient importance to deserve the attention of government.

It has of late attempted something in favour of a part of the establishments for education. Spain for a long time has had seven principal colleges at which the most distinguished youths of the country are educated. All who hold situations in administration were formerly instructed in these. This prerogative and many other abuses nourished idleness and arrogance in these colleges, and discouraged the other schools, with which the youth of people in easy circumstances, belonging to the law, were obliged to

* One particularly by Sigismund Macati; who was for some time in France, where he perfected himself in this art at the best school he could have chosen, that of *Chabert* and *Gilbert*; on his return to Spain, he published *les elementos della arte veterinaria*. He is now first director of the school established at Madrid in 1791.

† Among different translations from the Greek we must notice those of *Anacreon*, *Theocritus*, &c. Dion by Condi.

be satisfied. The latter had however their turn in the reign of Charles III. Their pupils attained the highest stations and took advantage afterwards of their influence to lessen the defects of the chief colleges. Following the stimulus thus given, government made new regulations respecting them in 1777 from which much good was looked for. It is looked for yet.

Much, however, has already been done for military education. Charles III. established a school for artillery at Segovia, a riding school at Ocana, one of engineers at Carthagena, and another for tactics at Avila, whence it has lately been removed to Port Santa Maria: at first all of them flourished. Every one produced individuals which did honour to the several institutions. The two last however disappeared with the credit of their founders Generals Recardos and O'Reilly, who died lately, one in battle fighting against us, and the other while in preparation for the same purpose.

We have already said enough to establish the opinion of the reader as to the actual state of the fine arts. As to matters of industry, manufactures at the beginning of the present century were greatly on the decline, since then government has been active in restoring those manufactories which the Austrian dynasty had left in the most deplorable situation. Philip V. readily adopted the idea, but did not persist. Ferdinand VI. possessed a minister in the Marquis de la Ensenada, who enjoyed great credit, and joined energy to perseverance: he surrounded himself with useful co-operators, and availed himself of their talents and character. Among other useful works, he established all kinds of manufactories in Spain, and, in order to make them succeed, laid heavy duties on the export of raw materials, totally prohibited that of silk, and received with open arms the workmen which emigrated to Spain. Valencia and Saragossa soon found the beneficial effects of this conduct. In the two following reigns, some of those manufactories were carried to a still higher degree of perfection. We have already noticed how much was effected by Charles III. for those of Segovia and Guadalupe. There are manufactories of common cloths at *Escaray* in Biscay, at *Bocairente*, at *Onteniente*, and at *Alcoy*, &c. in the kingdom of Valencia, and at *Grazalema* in Andalusia. In the course of this work we shall have occasion to speak of several others, and it will be seen that those of silk in particular have engaged the attention of government; that of galleons particularly has arrived at great perfection lately, so much so that little difference is observable between their galleons and those of France. There is a manufactory for hats at Madrid, as also at Badajoz and Seville, and for some years back foreign manufactories have felt the competition.

Spain also owes to the sovereigns of the house of Bourbon the few roads and canals she possesses. We have already noticed what her government has effected towards the making of roads; as for canals they are yet in their beginning. There is one at the entrance of Madrid, intended to join the Manzanares with the Tagus, and facilitate a communication between the capital and Aranjuez. Two or three leagues of it are completed; and so it remains.

That of Castile, long since begun, is nearly abandoned. The canal projected in Murcia, after taking the necessary levels in a bad manner, and afterwards ratifying them, after having obtained funds for carrying it on by the pompous prospectus held out, has been pronounced impracticable; the subscribers, instead of the profits which their avidity grasped at, must content themselves with the moderate interest the King has pledged himself to pay them.

In 1784 the minister adopted a project much more brilliant and useful than that he was obliged to abandon; that of a canal, which, beginning at the foot of the mountains of Guadarrama, was to proceed to join the Tagus, afterwards the Guadiana, and terminate

at the Guadalquivir above Anduxar, and which consequently would give new life and activity to the centre of Spain. A Frenchman, named le Maur, gave in the plan, and was preparing to carry it into execution, but died soon afterwards: however the plan was resolved, its branches settled, and the funds for carrying it on were ready; the undertaking was entrusted to the sons of le Maur, heirs of their father's plans, and in part of his talents. It was afterwards interrupted upon some dispute respecting its course. War afterwards breaking out brought on an additional obstacle; however since the return of peace its continuance is seriously contemplated.

But that which should more particularly contribute to the prosperity of Spain, which however has not yet produced all the benefit expected, is the modern institution of patriotic societies, known by the name of *friends to the country*.

The first institution of this kind took place in Biscay. It was soon followed by the other provinces, and by the capital, in which a patriotic society was established in 1775. At the end of 1778 there were already forty-four, and in 1795 sixty-two. The name of these institutions indicates their object. The members of which they are composed, encourage the progress of the arts, the agriculture and industry of their provinces. They propose questions relative to these objects, and give premiums to those who discuss them best. They awaken the industry of their fellow citizens, animate their zeal, solicit their information, give encouragement to artisans, assistance and advice to the peasants, and cause the patriotic ardour, with which they are animated, to circulate through every class of citizens. Never did a laudable institution make more rapid progress or produce more general effect. Those who never see the advancement of good but with an invidious eye, or whose methodical supineness is disgusted with novelty, whose self-love is mortified by success to which they do not contribute, such have endeavoured to throw ridicule upon these societies; they have pretended that the members talked much but performed little; that they exaggerated their importance, discussing trifles with pompous gravity. Undoubtedly they have not yet done every thing which may be done; their slender funds circumscribe their progress; but the great point was to rouse their country from its stupor, to offer a stimulus to the talents of artists and the labour of husbandmen, to excite their emulation by the prospect of fame, and their interest by the expectation of profit. This is what the societies have already effected. The leisure and savings of peace from 1783 to 1793 have been employed by government to furnish means for increasing their beneficence. In the beginning the funds of these societies consisted chiefly in voluntary contributions: government joined to this slender stock the funds of the stock called *Spolios y vacantes* (the produce of vacant benefices and fines, which belong to the King.) Charles III., in spite of his religious scruples, did not hesitate in granting thus a part of the property of the church to the encouragement of these societies.

The patriotic societies have received other encouragements from government. Enlightened by them, it has revived laws which had fallen into disuse. It has excluded such foreign merchandize as might be prejudicial to the national manufactures, and has procured to these such workmen as may improve and perfect them. These measures have already been prejudicial, and will become still more so, to other manufacturing and commercial nations; they may excite in them murmurs and alarm, they will doubtless reanimate their activity and vigilance, but must meet with the applause of real patriots, whatever be their country. France itself might even follow the example of Spain, and form similar establishments. Her new organization is readily adaptable to the measure. A patriotic society in every principal town of her departments would contribute to vivify that industry which in many places has arrived at perfection in different branches,
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and is every where of fruitful growth. Similar societies would have in France a better ground to work upon. Its crops would undoubtedly be of more speedy growth and more abundant. Let us shew our allies that if we criticise with sharpness we yet can sometimes take example from them.

The patriotic society of Madrid is distinguished from the others only by the more immediate protection of government, and by its situation, which gives it a greater facility of acquiring information and assistance. It has, perhaps, fewer objects, on which to exercise its zeal, because the productions of New Castile, in the centre of which it is placed, are less various than those of the other provinces, and because its industry is more confined. But it is attentive to the improvement of agriculture in the environs of Madrid, and to furnishing the children of both sexes and the poor of that capital with employment.

A perfect equality is the most sacred law of all these societies; rank is unknown in them; the Archbishop of Toledo, and the Duke of Medina Celi, may be met with placed by the side of an artisan, and information is welcomed from whatever source it may spring.

CHAP. XII.—*Council of Castile.—Corregidor and Alcaldes.—Legislation.—Influence of the Monks; of the King's Confessor particularly.—Authority of the Court of Rome repressed.—The Concordat of 1753.—Riches of the Clergy.—Progress of Philosophy relative to the Priesthood.*

AS Madrid is the centre of arts and sciences, so is it that of government. Although the Monarch resides there but a few weeks in the year, and his ministers be always near his person, this city is the seat of government, and all the supreme tribunals. We shall take a view of them collectively; which will naturally lead us to speak of the laws, religion, finance, and military force of Spain.

The Council of Castile holds the first rank among the councils and tribunals of the kingdom; it is at once a council of administration, and a sovereign tribunal, that has an exclusive cognizance of certain causes, and in certain cases receives appeals from the other tribunals. As a council it has the inspection of all interior operations interesting to the commonweal.

It is composed of five chambers:

1st, The *Sala de Gobierno*, which is confined to the affairs of administration; it receives references brought to the council, but it is only to send them to the second *Sala de Gobierno*, or to the *Sala de Justicia*.

2dly, The second *Sala de Gobierno* judges the causes sent to it by the former; and is particularly charged with matters relative to manufactures, bridges, and causeways.

3dly, The *Sala de mil y quinientos*, or of one thousand five hundred, thus called because those who appeal to it from the sentences of the sovereign tribunals are obliged to deposit fifteen hundred ducats, which they forfeit in case of losing the appeal.

4thly, The *Sala de Justicia*, has an exclusive cognizance of certain causes; but for the judgment of such as are capital is united to the others.

5thly, The *Sala de Provincia* judges the appeals in all important cases, and receives those made from the decision of the two civil lieutenants of Madrid (*Tenientes de Villa*), and from those of the *Alcaldes de Corte* in civil affairs.

These collectively form a sixth chamber, called the *Sala de los Alcaldes de Casa y Corte*, resembling that known formerly among the French by the name of *La Tournelle*. The city of Madrid is divided into a certain number of quarters, and the police of each is superintended by an *Alcalde de Corte*: who judges causes in the first instance, in concur-

rence with the civil lieutenants. The decisions of any separate one may be appealed from to the whole chamber assembled, which alone can finally pronounce upon criminal causes within its jurisdiction. It is in extraordinary cases only that they are carried before the Council of Castile.

The chamber of the *Alcaldes de Casa y Corte* was formerly the tribunal which always accompanied the court of Spain. Since this is fixed at Madrid, the tribunal has been fixed there also; and as it formerly had a provincial jurisdiction around the residence of the sovereign, it has still preserved such a jurisdiction to a certain distance from the capital.

The Council of Castile is the only one acknowledged by the grandees of Spain, and all its members have the right of *committimus*, like those of the French parliaments.

Spain is divided into two chanceries, those of Granada and Valladolid, which have an exclusive cognizance of certain causes. Their decisions are not appealed from to the Council of Castile, except in two cases, when the appellants address themselves to the chamber of *Mil y quinientos*, or upon a denial of justice. Each chancery has a particular chamber, called *Sala de Hidalgos*, or chamber of nobles. Its office is to authenticate nobility, and to hear causes relative thereto. It has also an exclusive cognizance of the criminal causes of the *Hidalgos*.

Besides these there are eight audiences, without reckoning the particular tribunal of Navarre, which has the title of *Royal Council*. The four audiences of the crown of Aragon are those of Saragossa, Barcelona, Valentia, and Majorca; and of the crown of Castile, those of Seville, Corunna, Oviedo, and the Canaries.

Each chancery and each audience has a criminal court, *Sala de Crimen*, which definitively pronounces criminal sentences, and causes them to be executed.

Except a few restrictions, these tribunals have equal power. The principal difference between the chanceries and the audiences is, that the first act in the King's name like the Council of Castile. There are also some cases in which appeals lie from the audiences of Corunna and Oviedo to the chancery of Valladolid, and from the audience of Seville to the chancery of Granada. But from the four audiences of the crown of Aragon the appeal (in certain cases) is immediately made to the Council of Castile, where the causes in question must be determined according to the laws of Arragon.

The limits of these different jurisdictions are not clearly enough defined to prevent frequent contests between the courts. Whilst the Council of Castile loses no opportunity of extending its jurisdictions, the chanceries and audiences incessantly struggle to support their supreme authority. Unless in cases of appeal, which are rare exceptions to the general rule, there is no resource against the decisions of all the sovereign tribunals, but revision, which in Spain is called *supplica*. Appeals, in that case, are made to the tribunal itself, praying it to revise the process.

The heads of the chanceries are called *Presidents*, and those of the audiences *Regents*.

The head of the Council of Castile has the title of President or Governor: these two dignities differ but little, except in honorary rank. The President of the Council of Castile must always be a grandee of Spain. When he appears in public, he has particular privileges.

After a long interval, this place was renewed in the person of the Count d'Arunda in 1766, in one of those critical moments which call for men of reputation; as he was at the same time captain-general of all Castile, this union of civil and military power gave him a very extensive authority, which he manifested possibly with too much energy. He made some enemies, and gave umbrage to the Monarch himself; he was consequently obliged to forego his presidency in 1773, in order to go ambassador to France, which character

character he filled for sixteen years. Whatever may be said of M. d'Aranda, during and since his administration of seven months, he conducted himself in such a manner that Spain will for a long time remember the talents he displayed. Madrid, in particular, will not forget what he effected towards its embellishment, its security, and even its amusements. It is to his care and prudence that Spain owes the expulsion of the Jesuits, prepared with the greatest secrecy, and executed without tumult. He also procured an account of its population, respecting which, before him, there was but a very vague idea. Thanks to him, the dissipated and frequently licentious lives of the monks were reformed, and their manners rendered more suitable to their profession. The abuses of the asylum which the greatest criminals found in the churches were suppressed. The temporal authority was defended against the pretensions of the holy see; bounds were set to those exterior practices of religion, the daily processions known under the name of *Rosarios*, more favourable to idleness than devotion; and in some respects, as we shall hereafter find, the power of fanaticism was subject to controul. He would have proceeded much farther but for the fatal interference of the confessor of Charles III., who, in every thing which regarded conscience, counterbalanced the weight of Aranda with His Majesty. Since his forced resignation of the presidency of the Council of Castile, the court abstained for eighteen years from nominating another; he was succeeded by a sensible and moderate ecclesiastic, M. de Figueroa, who had only the title of Governor of the Council. After his death the Count de Campomanes, as oldest member of the Council, discharged the functions of governor, without having the title till several years afterwards; but, on my returning to Spain in 1792, I found the Count de Cessuentis, a Spanish grandee, president. He died that year, and has had three successors, who only bore the title of governor; that is to say, an old magistrate, the Count de la Canada, afterwards the Bishop of Salamanca, and, lastly, the present governor, *Don Joseph Eustachio Morena*, who before that held one of the highest situations in the magistracy. The presidency appeared at that time to be again suppressed.

In general, the oldest members of this council form what is called in Spain the *Camara*, which is the chamber of the council. It is properly the privy council of the Monarch, and at the same time a sovereign tribunal for certain causes, such as all which have relation to the succession of the royal family, and all contests relative to the rights of cities (*Ciudades*). It is also the council which issues all patents of royal favour; and recommends to His Majesty, through the medium of his minister of favour and justice, three persons to fill every situation in the magistracy, and the King chooses one of the three.

No place in the magistracy is venal in Spain. This, like all human institutions, has its advantage and inconvenience. It leaves a greater opening to caprice, favour, and intrigue, it prevents the tribunals from being dishonoured by incapacity and ignorance, and diminishes the temptation to sell that justice of which the right of dispensing is bought. It is true, that the integrity of magistrates frequently without fortune must appear suspicious, and that their moderate fees seem but a weak rampart against corruption. However, notwithstanding the declamations of dissatisfied clients, iniquitous and partial judges are not more common in Spain than in other countries. On the other hand, the *Escrivanos*, a sort of lawyer corresponding with our solicitors and notaries, do not seem to me to have ill deserved the reputation they generally hold for rapacity and pettyfogging tricks.

There is a kind of gradation in the Spanish magistracy of which the degrees are regularly ascended. All the members of the *Camara* are former counsellors of Castile; these seldom obtain their places without having been presidents of a chancery or an audience,

audience, or at least formerly counsellors of one of these tribunals, or *Alcalae de Corte*. In the same manner it is from among the advocates, *corregidores*, or *alcaldes mayores* that the latter are chosen. It is here necessary to give some account of these *Alcaldes*, of whose offices foreigners in general have but a very confused idea. First, there are two classes of simple *Alcaldes*, who are established in the cities, boroughs and villages. The *Alcalde ordinario* judges in the first instance, where there is no *corregidor*, but in places where there is one, has cognizance of civil causes in concurrence with him, and those alone: the *Alcalde pedáneo*, who is commonly taken from the common people, has no other function but to arrest delinquents, and execute the orders of the *corregidores*, or the *alcalde mayor*.

The simple *Alcaldes* are differently appointed, according to the privileges of the different communes. In some places they are chosen by the municipality (*ayuntamiento*), in others, by lot; while in different ones they are named by the council of Castile, the tribunal of the province, or the lord of the manor, who chooses one from three persons proposed to him. They are changed every year.

The *Alcaldes Mayores*, or *Corregidores*, are all named by the King upon the presentation of the *Camara*. This inferior degree of magistracy was formerly under very improper regulations, which government has lately reformed. The place of *corregidor* was bestowed on persons of small fortune, who held their places three years, when their office expired, and they were again obliged to have recourse to new solicitations. How could it be hoped, that men with want staring them in the face, would not be violently tempted to insure themselves resources at the expence of those over whom they possessed a transient authority? It was, at length, determined to furnish them with motives for emulation, and keep them from temptation by enacting, that for the future they should continue in office six years instead of three; that there should be three classes of *Corregimientos*; from one class of which they should pass to another, after having well discharged the duties of their former place; that their emoluments should be increased at every removal; and that having thus gone through the three classes to the satisfaction of His Majesty, they should have what in Spain is called the honour of *Togado*, that is, the title and prerogatives annexed to the place of counsellor of the superior tribunals. This plan, worthy of a well-organized republic, was conceived by M. de Campomanes, and executed by M. de Florida Blanca, when minister of favour and justice, an effort which may be looked upon as meritorious on the part of the latter, for these two men, formerly colleagues, and then rivals, were never friends.

Besides these three classes of *corregidores*, there is one of another kind: it is those of Madrid and Seville, two cities in which the magistracy is peculiar and distinct. The *corregidores* are for life, and must not be taken from the profession of the law; they are no more than chiefs of the police who preside at city meetings, bull-fights, and the public acts of the city. The civil lieutenants, *Tenientes de Villa*, have a jurisdiction independent of their authority, but these supply their places in presidencies. Besides these, Madrid and Seville have *Regidores*, a kind of inspectors, who maintain the police in concurrence with the *corregidor*.*

* At Madrid in every quarter there is an *Alcalde de Barrio*, a sort of commissary who, subject to the *Alcalde de Corte*, superintends the maintenance of the peace. Lastly, there is a magistrate, called *Superintendente*, especially charged with the management of the police in concurrence with the *Alcaldes de Corte*, the *Corregidor*, the *Tenientes de Villa*, and the *Regidores*. This place, which much resembles that of the former *Lieutenants de Police* at Paris, invests a considerable power in the hands of the holder; by means of which he not only becomes formidable to all the disturbers of public order, but, at times, alarms with his vexatious vigilance the most obscure and inoffensive dwellings. Such as may have lived at Madrid towards the end of the reign of Charles III. will not hesitate to place at the bottom of this portrait the name of *Castro*, that chief of the police, who for more than ten years was the scarecrow of the weak much more than the guilty at Madrid.

From this constitution, which is certainly somewhat complicated, results frequent clashing of jurisdiction among the magistrates; but, on the other hand, there are few cities in Europe in which the police is better regulated than at Madrid, where there is more safety, or where fewer crimes are committed which escape the vigilance of justice.

It now remains to consider, by what code of laws justice is administered in Madrid, as well as in the rest of the kingdom. It might be said, strictly speaking, that the Roman or civil law has no power there. This, by some old ordinances of the kings of Castile, is even forbidden, under severe penalties to be quoted. These laws, however, are frequently consulted in practice; and lawyers, without looking upon the code as infallible, derive from it frequently both information and precedents. The form of process in Spain is conformable to the Roman law, except a difference in terms and in the production of documents. They are reported, not as in France by members of the tribunal, but by particular magistrates, called *Relatores*, whose places are very lucrative, and consequently much sought after. In important cases, one of the counsellors is deputed to examine the process, and make his report to the tribunal.

The only authentic laws by which justice is administered, are registered in the codes published by the ancient kings; such are the *Ley de las siete Partidas*, the *Ordenamiento-Real*, the *Fuero-Juzgo*, and *Fuero-Real*. The principal code, that which is in constant use, is called *Recopilacion*. It is a collection of various and distinct edicts of the monarchs of Spain from the earliest ages to the present reign. A new edition is given from time to time, in which all the laws published since the last are inserted.

It was pretended in certain foreign prints, that Charles III. intended to give a new criminal code to Spain: The assertion was untrue. The rumour had its origin in the council of Castile, by the agency of the Count de Campomanes, who was then one of its *fiscales*, having proposed the revision and reform of the old criminal laws, some of which were absurd or disgusting. I know not whether this work be yet completed, but it has already produced a tract on the penal laws, the work of a young lawyer named *Lardizabal*, which appeared in 1784, and may be read with pleasure and advantage, even after the celebrated essays of the Marquis of Beccaria.

This is the proper place to speak of the torture; that barbarous institution against which that modern philosopher has so forcibly exclaimed. It is not yet formally abolished in Spain, and still finds some defenders. A few years ago an ecclesiastic, named Castro, undertook a formal apology for it; but his work, which inspired almost general indignation, was victoriously refuted, to the great satisfaction of the reasonable part of the nation.

The canon law is the received code in Spain in all ecclesiastical affairs. It must not, however, be imagined, that the court of Madrid pays implicit obedience to the orders of the Holy See; as one is tempted to conceive from the part played even now in Spain by the numerous legions of modern Rome, which, like the ancient, aspires to universal dominion. Religion and its ministers are without doubt still held in the greatest veneration, and the priests and monks, under the pretext of directing consciences, take part at times in temporal concerns, and abuse the confidence placed in them by credulity. But these abuses, even under the reign of the more pious monarchs, were in many respects suppressed; after being for a great part of the last century encouraged by their example. The dangerous influence which Father D'Aubenton, and his successors of the same order enjoyed at the court of Philip V. is remembered with indignation; as likewise that of Father Rabago, the last Jesuit who sat in the confessional chair of the Spanish monarchs, with Ferdinand VI. The confessor of the last King for a long time

was a Franciscan, who afterwards became Bishop of Osma, who would willingly have so far mortified his humility as to have accepted the Roman purple. Of an austere and fretful disposition, he was very attentive to his penitent; but (whatever may have been said of him,) meddled very little with matters foreign to his function. Charles III., although he continually treated him with that deference due to the director of his conscience, more than once repressed the fervency of his zeal. Nor, spite of the devout character of the King, could he make any attempts upon him with impunity. On my first visit to Spain, when the theatre at Saragossa was consumed by lightning, the father confessor was desirous of impressing on the mind of His Majesty, that evidence was thus afforded by Heaven itself, how obnoxious profane spectacles were in its sight, and entreated him, consequently, to cause them to be shut up throughout the monarchy. He continually wearied him with solicitations to this effect, but Charles III., little disposed as he naturally was to irritation, cut him short with a firmness nearly approaching to anger. M. de Florida Blanca, who, after a long residence at Rome, had imbibed more philosophical ideas than religious ones, frequently opposed the peevish scruples of the director of the royal conscience, and consequently was little beloved by him. The confessors of the present court no longer possess this blind fanaticism. The King's confessor is a Cordelier, who has obtained his station through the favour of the Prince of the Peace, his countryman, and had an archbishopric speedily attached to his office. That of the Queen has for a long time back held the confessional chair. Both are reputed to be men of sense and address. Both are admitted to the intimacy of the royal couple; but their credit is small; it is eclipsed, like that of every other, by the splendor of the luminary from whose center all rays of favour diverge.

Throughout almost the entire reign of Charles III., his confessor was consulted upon filling the vacant bishoprics and other ecclesiastical dignities, which were at the disposal of the King, and in this point of view might be considered as possessing the nomination to benefices. But even in this respect, his influence was afterwards circumscribed, and the appointment to vacant sees vested in the Count de Florida Blanca, as minister of favour and justice.

This right of the Kings of Spain to nominate to the great benefices of their dominions has been peaceably allowed only since the year 1753, the date of the compact between the Spanish court and the Holy See; till then the collation to benefices had been the object of frequent contests between the two courts. Negotiation was at last resorted to as the best mode of determination; for this purpose, Spain deputed the Abbé de Figueroa, a man of a mild and conciliating character, and who has since been at the head of the council of Castile. The result was the compact which has irrevocably settled the relations between the crown of Spain and the court of Rome.

The Holy See confirmed the ancient right of the Kings of Spain to the nomination to all consistorial benefices.

The principal contest turned upon regular and simple benefices. The popes claimed a right to confer those at least which became vacant in the apostolical months; but the compact enumerated fifty-two benefices which should be at the nomination of the Holy See, with obligation to confer them upon none but Spaniards; and it was also stipulated that the pope should not delegate this power of collation; that the benefices should be exempt from pensions, and that the titularies should pay no *cedulas bancarias*. These were contracts made with the apostolical chamber, by virtue of which the candidate engaged to pay a certain sum. This sum he frequently did not possess; in which case the apostolical chamber advanced it at an enormous interest, and kept agents in Spain to see these engagements fulfilled. These ruinous abuses, which it was wondrous should

subsist in Europe in the 18th century, sent to Rome, one year with another, a fifth of the revenue of all the benefices.

This was not the only impropriety abolished by the compact. Previous to it the pope had always disposed of the *spolios y vacantes*, that is of the property of deceased prelates and the revenues of vacant benefices. The administration of these funds was confided to an office composed of Italians, so expert in this business that a fourth of the produce of these benefices disappeared by their rapacious management. By the compact the Holy See renounced these revenues under the single condition that the administration of the *spolios y vacantes* should be granted to none but an ecclesiastic; which trifling restriction does not however prevent the Kings of Spain from disposing of them according to their pleasure. The minister they name employs a part of them in making advances to the new prelates who want money for their establishment. *It has been remarked, to the praise of the dignified Spanish clergy, that the repayment of these advances has never been known to be neglected.*

Although it be stipulated by the compact that the produce of the *spolios y vacantes* shall be wholly consecrated to pious uses, the King, as we have observed, makes no scruple of employing a part of them in the encouragement of industry, and even in reward of military services: but the chapters commonly chosen to liquidate the property of deceased prelates, and to administer to the revenues of great vacant benefices, sometimes reduce them to one-fourth of their real value."

As the compact deprived the Holy See of some revenues, the court of Madrid in compensation engaged to pay it for one part thereof, six hundred thousand Roman crowns, bearing interest till paid of three per cent. and on the other a sum of three hundred and ten thousand crowns bearing the same interest. Lastly, the bull of the crusade was rendered perpetual. Besides these contributions which Spain pays to the Holy See. The produce of marriage dispensations still remains in the possession of the latter, and may be estimated at fifteen hundred thousand livres (62,500*l.*) a year.

Since that period the court of Madrid has warmly defended the rights of sovereign authority against the pretensions of the Holy See. It is not forgotten in what manner it received the admonition of Clement XIII. to the infant of Parma. The council of Castile suppressed all the copies, and commanded the same to be done with all the letters, bulls and briefs which should be found contrary to the royal rights or to the measures taken by government, renewing the ancient law which denounced the *pain of death and confiscation* against any persons who should dare to note them.

On this occasion the council of Castile, of which the count d'Aranda was then president, put in force every public act by which the Kings of Spain, from the time of Charles V. had endeavoured to hinder the admission of the bull in *Cena Domini*, so far as it was prejudicial to the sovereignty and jurisdiction of the temporal tribunals, and commanded all archbishops and bishops of the kingdom to prevent its publication and enforcement in their several dioceses.

Spain has besides the resource of its *appeals from abuses* against the court of Rome,

In 1784 a Spanish work appeared, on this subject, intitled *Maximas sobre recursos de fuerza y proteccion*. The clergy, and especially the holy office, the ancient constitution of which was printed at the end of the work, endeavoured to prevent its publication; but the council of Castile and the minister openly protected the author.

It was at the same period also that the powers and privileges of the nuncio in Spain were confined to a distinct extent, for notwithstanding the ordinances of the preceding sovereigns, the nuncios frequently took advantage of the deference which the Spaniards paid them to exceed their rights.

Under the present reigning family, they made other attempts in which they failed. At length, in 1771, the court of Madrid obtained from pope Clement XIV. a brief, which gave a new form to the nunciature, and substituted in lieu of the auditor of the nuncio, who was the only judge of this tribunal, a rota modelled by that of Rome, and composed of six ecclesiastics, named by the sovereign pontiff it is true, but presented by the King of Spain.

It must besides be observed that Spain has long since adopted maxims, with respect to the independence of the sovereign power, very similar to the four famous articles which were sanctioned by the assembly of the clergy of France in 1682, and which all subjects, upon taking upon them public employments, are obliged to swear to observe.

There still exists in Spain, however, a very great abuse arising from wrong notions of religion. This is the extreme riches of the monks and clergy. Next to the ecclesiastical principalities of Germany, the richest catholic prelaties are found in Spain. The archbishoprics of Toledo, Seville, St. Iago, Valencia, and Saragossa, have larger revenues than any had in France. There are monasteries, and particularly some of the Carthusians, the property of which extends to the greatest part of the districts in which they are situated; and these religious foundations, while they depopulate and impoverish the neighbouring country, increase poverty and idleness by indiscriminate charity.

Government, however, which becomes more and more enlightened, is endeavouring to remedy the consequence of this state of things. In the first place the wisdom manifested in the choice of prelates hinders that display of offensive luxury which, by irritating indigence, diminishes the respect due to religion: and notwithstanding there yet remain some few fanatics among them, they are, collectively, venerable from the austerity of their manners and their charitable dispositions; all of them employing a great portion of their income in alms-giving and many consecrating a part to the encouragement of industry; and this is not the only manner in which the riches of the clergy contribute to the good of the state. As well as that, by being obliged to reside at their sees, their income is consequently expended on the spot, to the great emolument of the country; it will be seen, when we come to treat of the taxes, that they pay considerable contributions. Besides these, the court of Madrid has obtained from the Holy See, the power of charging all the great benefices with the payment of pensions even to a third of their produce; and by a brief in 1783, this power was extended to all the simple benefices, which produce upwards of two hundred ducats, or about five hundred and fifty livres, and during the last war, which rendered fresh taxes necessary, ecclesiastical property, with the consent of Rome, has been laid under contribution even in a higher proportion than that of the laity.

The Spaniards saw, perhaps more clearly than other states which pretend to more philosophy, the absurdity of having religious orders, and suffering the heads of them to reside out of the kingdom. In consequence of this, notwithstanding the remonstrances I was instructed to make in 1785, the Carthusian monasteries in Spain were delivered from their dependance upon the grand Chartreuse; and the minister Florida Blanca assured me when I left Madrid that there were but two monastic orders, which had their principals or generals at Rome; and the death of these two was only waited for to detach their orders from such a dangerous insubordination. It does not appear however that the intention has hitherto been effected.

A philosopher in some respects, this minister must be allowed to have had very just ideas of certain matters. For a many years he had been a close spectator of the Holy See, and its profane adherents, and had brought back from Rome the habitude of contemplating

templating the objects of the veneration of the faithful without enthusiasm. Roda, his predecessor in the ministry of mercy and justice, had also resided a long time at Rome, as auditor of the *rota*. On his return, notwithstanding he was officially surrounded by monks and priests, he entertained and even professed opinions respecting the usurpations of the court of Rome, which were looked upon as rash, which were on the contrary but reasonable, and to these he conformed himself in his transactions. Were Spain to have an uninterrupted succession of administrators similar to these two, and resembling some of the ministers of the present day, soon would she be released from the holy gyves, which have so forely galled her for the last two centuries.

Throughout the present her progress is perceptible. Other proofs exist of it beyond what we have hitherto mentioned. The severity with which the court of Madrid has treated the Society of Jesus, the continued vigour with which it pursued the Jesuits, even to their extinction in the court of Rome, the tranquillity of the nation whilst these measures were carrying into execution, prove that Spain crouches not so much as it is commonly believed beneath the yoke of superstition, and the absolute empire of the monks.

CHAP. XIII.—*Charges against, and defence of, the Inquisition.—Enumeration of the auto de fés of a recent date.—Adventures of M. d'Olivadis.—Present state of the Inquisition.—Of the Santa Hermandad, or holy brotherhood.*

THERE is yet one religious institution in Spain to which philosophy mourns to see that nation subject, I mean the Holy Office, that tribunal to which every odious epithet has long been applied, and which has still in Spain two powerful supporters, policy and religion.

The frank impartiality with which I explained myself on the subject of the Inquisition in my first edition, drew upon me reproaches of a very different complexion. On the one hand, some Spaniards, in other respects well informed, accused me of having too much heightened the colours in which I had painted the Holy Office; on the other, the French, after reading the description I gave of it, accused me of too much moderation, and even of imposture. Placed between these two schools how am I to steer: should I relate what I have seen, and give my own opinion? I did so before; I shall continue the same line of conduct.

Its defenders alledge that the authority of the sovereign finds in the Holy Office a means of making itself respected, since by enchainning the consciences of the subjects, it provides additional security for their obedience, and prevents those variations and incertitudes in religion which have but too frequently disturbed the peace of society. They assert that by its means the true faith preserves its unity and purity, and attribute to the Inquisition the tranquillity which Spain has in this respect constantly enjoyed, while the other Christian states of Europe, at different periods, have experienced all the bitterness of dogmatic quarrels, and the turbulent zeal of innovators.

Others go still farther. Will it be believed that a magistrate, otherwise distinguished for learning, and who presented some energetic representations to Philip V. upon the usurpations of the Holy Office (I allude to Macanaz); will it obtain credit that such a man should be their partizan? He, however, wrote a work in 1756, not reprinted, however, until 1788, which has for its title, *Defensa Crítica de la Inquisition*.

In it he states that, by the allowance of heretics themselves, the Holy Office never seizes upon any one before the crime with which he has been charged has been substantiated by five witnesses; nor condemns until two additional testimonies appear to authen-

authenticate the charge of the first, where it is not rendered unnecessary by the confession of the culprit; that for the first and second offence it grants absolution, upon the accused person craving pardon; that it judges errors only according to *the counsel of the most enlightened doctors of the church*; that the culprit is well taken care of in prison, and heard as often as he may require; that the heads of the charges of which he stands accused are read to him, *hiding nothing but the names of the witnesses*; but if *error in him be proved*, and not retracted, secular justice administers the penalties applicatory to the crime according to law.

In this account much truth is contained, which, however, should it be entirely correct, does not tend to lessen the horror which the Inquisition inspires. It appears to be proved, (if proofs can be expected at all where the parties concerned are enjoined to secrecy, under pain of the most dreadful punishments,) that the prisoners of the Inquisition, although inaccessible to any visit from the exterior of their prison, are well treated and well fed; that the physical tortures to which it is pretended they are subject are mere chimeras, invented by resentment, and propagated by credulity, so fond of matters which have any things of extraordinary to recommend them; or, if they be at all practised, that the occasions have been exceedingly rare.

Macanaz adds, that agreeable to the confession of the greatest enemies of the Inquisition, such as go of themselves to declare their crimes, and repent, are treated with mildness; that those which they arrest, if they retract, they obtain forgiveness; that in charging them with seizures *for the sake of gain*, they are calumniated, since the confiscation is for the advantage of the sovereign.—But what must one think of Macanaz and of his apology, when with ridiculous gravity he affirms that the Inquisition “*imposes no punishment*” on those who are fixed in their error, and “*asks for nothing but the salvation of the life of the guilty*”; that if they become converted, it confines itself to applying canonical punishments, but that the sword of the law, which the monarch preserves in the tribunal for the chastisement of the guilty, “*is sometimes reddened with the blood of criminals*?” . . . Yet even then it is done with the *holy view* of converting many by the punishment of one, “*as it commonly happens*” . . . Reasoning is unnecessary, silent indignation is the only reply such phrases claim; and these from a magistrate! from a pretended philosopher! and in the eighteenth century!

Recrimination is one of the principal modes of defence adopted by Macanaz. In this view he presents a horrible picture of the persecuting reign of Elizabeth; and cites the atrocities exercised in France by the heretics. According to him the procedure of the Inquisition is a model of justice and mercy, compared with the horrible treatment they experienced. Thus, according to Macanaz, and doubtless the same sentiments existed in those who have caused his works to be printed and reprinted; because our ancestors were blind and atrocious, our contemporaries, who are perhaps a little less so than they were, or rather let me say, than of our contemporaries, who give the form and title of justice to the cruelty of enthusiasm, (and who are much less pardonable, since they have not for excuse the delirium of the passions,) those have just pretensions to esteem and respect; so because they do not exterminate by myriads, like Pizarro, they possess the humanity of a Fenelon!

The antagonists of the Inquisition, both ancient and modern, maintain, on the contrary, that it has constantly excluded knowledge from Spain, that it has pampered superstition and fanaticism, and kept the mind in that servile subjection calculated to repress those vigorous efforts of genius by which great works of every kind are produced; that in freezing the heart with fear, it prevents the sweet effusions of confidence and friendship, destroys the most intimate connexions which constitute their charms, and

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for two entire ages has sentenced Spain to ignorance and barbarism. This picture is not in truth an exaggeration in any great degree; but as I have interdicted all declamation on my part, in spite of the horror which I feel for the Inquisition, I will maintain that it is sensible in Spain of the revolution which has been effected in the manners of the age in all countries; and if this revolution has not altered the primitive constitution of the Holy Office, it has at least tempered its severity, and rendered it less visible and less frequent. *Auto de fés* are not the same pompous solemnities as formerly, whose gorgeous display, under the pretence of honouring religion, insulted humanity: heretofore the whole nation ran to them as to a triumph, and the sovereign and all his court were present; imagining that thus they performed an act of the most meritorious nature in the eyes of the Deity, and enjoyed the torments of the victims which were delivered up at once to the executioner, and the maledictions of the people; the particulars of these barbarous rejoicings as well were related in books written expressly to describe the part taken in them, and the pleasure received from them by the spectator.

After the *auto de fés* in 1680, a work was published, giving the most circumstantial relation of that terrible solemnity. The author seems to have taken as much pleasure as if he were describing a public festivity. "I am about," he says, "to relate, with an interesting exactness, all the circumstances of that triumph so glorious to the faith, with a list of the nobility present, and a summary of the sentences passed upon the criminals."

The censors afterwards approve, in the most distinguished manner, a work which, say they, "for the majesty of its subject ought not only to be read in Spain, but by the whole world."

The examiner surpasses the censors. "The author," says he, "has answered the public expectation at a time that curiosity made it the object of every wish, and the pious impatience of all true believers complained of delay." He is above all eulogium for "having given, with a scrupulous attention, all the particulars of this wonderful ceremony."

In the course of his narrative, the author frequently celebrates the pious zeal of the monarch, who was himself present at the ceremony.

"This prince," says he, "having given it to be understood that he should be glad to be present at the celebration of an *auto-general*, the council of the Inquisition thought it would be shewing him a mark of respect to afford him an opportunity to imitate the admirable example of his august father Philip IV." The grand inquisitor went in consequence to kiss His Majesty's hand, "assuring him that he would take the most speedy measures for the accomplishment of a work which was *so agreeable to him*."

"It was a great consolation," says he, "to the zealous, a subject of confusion to those of a lukewarm zeal, and of astonishment for all the spectators, to witness a constancy worthy of being admired for ages to come. From eight o'clock in the morning His Majesty remained in his balcony, without manifesting the least uneasiness from the heat, or the prodigious concourse of people, or appearing wearied by so long a ceremony. His zeal and devotion were so superior to the fatigue, that he did not even withdraw for a quarter of an hour to taste refreshment; and at the end of the ceremony he asked if there were any thing else to be done, and if he might retire."

The Spaniards of the present age are far from that cool cruelty which shuts the heart against pity; and are at liberty to compassionate the very small number of unhappy victims who suffer the severity of the Holy Office.

They have indeed been very rare in the present century, for there has not been one general *auto de fé* similar to that of 1680.

In 1714, some monks, whose monastery was in the neighbourhood of a convent of nuns, were convicted of having abused the ascendancy they had gained over their minds, by making them guilty of disorders which they concealed under the veil of religion. The Holy Office condemned to death those who were most culpable, and, according to custom, delivered them over to the secular power.

Eleven years after, the Inquisition exercised another act of severity, which I will not undertake equally to justify. A family of Moors was discovered at Granada, peaceably employed in the manufacture of silk, in which it excelled. The ancient laws, supposed to have become obsolete, were for this time renewed with all their rigour, and the unhappy Moors were burnt alive.

In 1756, seven persons from among the lower class of people were taken from the prisons of Madrid to hear their sentences pronounced. One of them, a schoolmaster, who had been falsely accused, was acquitted. The three false witnesses who had deposed against him, one of whom was his wife, were banished for eight years, and condemned to receive two hundred lashes, which were never inflicted. Another culprit really received the lashes, and was the only person then corporally punished, because, as the sentence declared, he was *heretic, apostate, inclined to Judaism, and unsettled in his faith*. The only crime of one of the seven, who was from Toulouse, consisted in his being a *Free-Mason*; his sentence was perpetual banishment, and the confiscation of his property.

These divisions wore the appearance of ignorance rather than cruelty; but in 1763, a particular *auto de fé* was celebrated at Llerena, when some heretics were delivered to the flames. The obscurity of these victims prevented their punishment from becoming generally public; and the universal terror which the name alone of the Inquisition inspired, seemed to be less prevalent. The King, the year before, had restrained the powers of this tribunal. The grand inquisitor having, against the express will of His Majesty, published a bull which proscribed a French book, was exiled to a convent thirteen leagues from Madrid. Whilst in exile he endeavoured to excuse himself by alledging the immemorial usage, which gave to the Holy Office the exclusive right of prohibiting dangerous books. At the end of a few weeks he obtained his pardon; but the King, after having taken the advice of his ministers and the council of Castile, issued an ordinance, which stated:

1. That for the future the grand inquisitor should not be allowed to publish edicts, except when they were sent to him from His Majesty.
2. That when he should receive briefs, by which books were to be prohibited, he should conform to the laws of the country, and publish the prohibition, not supporting himself by the brief, but by his own authority.

Finally, That the Holy Office should, before it condemned a book, summon the author before the tribunal, to hear what he might have to say in his defence.

This little triumph of reason and sovereign authority promised to be but short. The year following, the influence of the King's confessor produced a revocation of the edict; but the Count de Aranda managed so as to revive the order of 1762, by gaining over a mixed assembly of magistrates and bishops who had been created on the occasion of the expulsion of the Jesuits. This was not the only effort of that wise minister, to circumscribe the power of the Holy Office; he had long meditated the depriving it of the right to seize the property of the criminals it condemned: but it was objected, that it furnished a part of the salaries of the officers of the tribunal; and that to supply the failure of this property, it would be necessary to create a fund of upwards of six hundred thousand livres (25,000l.).

(25,000l.). This consideration suspended the revocation which was ready to be pronounced.

The count succeeded better in another attempt. Being president of the council of Castile, which has always been the zealous defender of the rights of sovereignty, and gaining over, by the ascendancy of his character and talents, some powerful prelates, whose secret dislike to a tribunal, enriched by episcopal spoils, he took every means to increase; he obtained in 1770 a royal mandate which confined the jurisdiction of the Inquisition to the cognizance of the crimes of heresy and apostacy, and forbade it to *imprison the subjects* of His Majesty, unless these crimes were first clearly proved.

This went to contract its limits greatly. The victory which he thus obtained was obnoxious in Spain to a very small number of weak and fanatic people. It was highly celebrated and exaggerated in foreign countries. The moment was supposed to be at hand when the hydra, which philosophy had long before condemned, was about to be destroyed.

The resignation of the Count de Aranda, which happened soon after, did not prevent similar measures from being pursued, because distinguished and enlightened persons were still at the head of administration, who, notwithstanding their zeal for religion, had imbibed the same principles. Security was re-established in the minds of men without banishing the respect due to religion and its ministers. This was insured by the goodness and moderation of the monarch, and the tolerating maxims of those in whom he principally confided. The time of rigour and cruelty seemed to be passed, and the Holy Office appeared to slumber, when in 1777 it suddenly shook off its supineness at the expence of an illustrious victim, and terror and false zeal were again roused through all Spain; while throughout the rest of Europe the indignation of every rational friend to the blessings of a wise toleration was again excited.

Don Pablo Olavidé, born in Peru, had been raised by his distinguished abilities to one of the first employments in the state, that of intendant of the four kingdoms of Andalusia and *Assistente* of Seville. His sage measures in this important post had excited admiration and gratitude, when new opportunities presented themselves to signalize his zeal. The King had conceived the project of clearing and populating that part of the Sierra Morena which is crossed by the road from Madrid to Cadiz, a district formerly inhabited and cultivated, but lately overgrown with wood, and become a retreat for robbers and wild beasts. M. Olavidé was appointed to carry this plan into effect, and acquitted himself of his commission in the most distinguished manner; he however could not avoid the ordinary rock of all great enterprises. He made himself enemies; and drew upon him the hatred of Father Romuald, a German capuchin, who had brought into the Sierra Morena a patent from the general of his order, by which he was declared prefect of all new missions, and by which he arrogated to himself an unlimited authority in every thing which could be made to have the least connexion with religion. He was opposed by M. Olavidé, who otherwise gave him a good reception, and received him into his intimacy. The disappointed ambition of the monk became furious. Some indiscreet expressions from M. Olavidé, in an unguarded moment, supplied him with an opportunity to gratify his revenge. He fomented the discontents of some of the settlers who were his own countrymen, and made use of them to discredit the new establishment and its principal conductor. The memorials which he presented to the council of Castile were full of the most serious charges against M. Olavidé. The council caused them to be examined by an impartial judge, and M. Olavidé was sud-

denly ordered to court in the month of November 1775, there to confer concerning different objects relative to his mission.

Whilst he resided tranquilly at Madrid, he discovered by accident the treacherous conspiracy intended for his destruction. He learned from intercepted letters that Father Romuald had planned his ruin, to enrich himself with his spoils, and that he was not without a hope that the court itself would favour his detestable plot.

M. Olavidé was further informed by some friends whom he still had in the Sierra Morena, that the preceding year the vindictive monk had accused him to the minister of foreign affairs, of being wanting in respect to divine worship and ecclesiastical discipline in the new colonies, and of having in his possession prohibited books; and also that he had but a short time before accused him to the Holy Office.

However alarming this information might be, M. Olavidé confided in the rectitude of his own conscience. He solicited the ministers to convey to the foot of the throne the proofs of his innocence. He went to the grand inquisitor protesting the purity of his faith, and offered to retract the expressions which might have escaped him to the prejudice of religion. For more than a year that he had resided at Madrid, his conduct was of a most exemplary nature; but nothing could avert the storm which threatened him.

The 14th of November 1776, a grandee of Spain, in quality of *Alguazil Mayor* of the Inquisition, accompanied by some officers of justice, arrested him in his house, and conveyed him to the prison of the Holy Office.

At the same time his wife, who was at Carolina, where she had remained during the absence of her husband, saw the officers of the Inquisition arrive and seize all his property, books, and papers; whilst another detachment did the same at his house in Seville. Until the day his sentence was pronounced he was lost to his family, who knew not whether he was dead or alive, and had given over all hopes of ever seeing him more.

I arrived in Spain for the first time when this event was quite recent, and was witness to the sensations which these proceedings occasioned in the minds of different men. The rivals of M. Olavidé, the invidious, and some devotees, constant in their zeal for the cause of religion, considered it as a triumph. Several of his more rigid countrymen thought it a just chastisement for the imprudencies attributed to him; and which might have had other judges elsewhere, but would not have escaped unpunished. Consternation was however the most general sentiment. Each began to tremble for himself, fearing lest he should find in his most intimate connexions both spies and accusers. How were it afterwards possible to enjoy the sweet communications of confidence and friendship? What man could be prudent enough and sufficiently sure of himself to concert all his actions, weigh his expressions, and never furnish matter of accusation for a secret enemy, a corrupted servant, a friend, or even a son led astray by his scruples? The Holy Office is perhaps more just than severe; but its proceeding is dreadful! How can an accused person disculpate himself when he neither knows his crime nor accusers? And how is it possible to avert the thunderbolt prepared in silence in the shades of its impenetrable maze?

Such were the reasonings dictated by terror during the imprisonment of M. Olavidé. The apparent supineness of the Inquisition had re-established security, but its sudden revival terrified every one. The first impression was besides rendered more lasting by other circumstances. The monks thought the time at hand to regain their lost power. Scarcely was M. Olavidé arrested before it was known that a mission of capuchins at Seville had abandoned themselves to an excess of zeal, and loudly exclaimed against
profane

profane theatres to which he had given encouragement in that city. At the same time the Inquisitions of the provinces partook of the triumph of the capital, and made an essay of their returning power. The inquisition of Cadiz renewed a ceremony which had been neglected there for half a century, and which is annually repeated at Madrid, that of solemnly reading all the decrees of the Holy Office, the bulls upon which its power is founded, and all the anathemas fulminated against heresy and irreligion. It seemed as if the Holy Office wished to make a mockery of the alarm of the public.

In the mean time the prosecution of M. Olavidé was carried on with the utmost secrecy. His fate was at length decided after a rigorous imprisonment of a year and seven days, during which he had not the consolation of having even one of his servants suffered to approach him.

On the 21st of November 1778, an assembly was held in the hall of the Inquisition, to which forty persons of different orders were invited, among whom were several grandees of Spain, general officers, priests, and monks.

The criminal appeared cloathed in yellow, carrying in his hand a green taper, and accompanied by two ministers of the Holy Office. All the proceedings were read. The most interesting part was the circumstantial relation he himself had given in of his whole life. In this he confessed that in his travels he had frequented the society of free-thinkers, namely, Voltaire and Rousseau; that he had returned to Spain with many prejudices against the clergy, and persuaded that the privileges and opinions of the church of Rome were repugnant to the prosperity of states; that since he had been placed over the colonies of Sierra Morena, he had openly, and without reflection, avowed his opinion concerning the obstacles which retarded their progress, the infallibility of the pope, and the tribunal of the Inquisition.

Afterward were produced the depositions of seventy-eight witnesses, who accused him of having frequently spoken the language of free-thinkers, and ridiculed the priests. To several of the charges made against him he pleaded guilty, and denied others, asserting that in all these cases his words had never expressed his true sentiments; that his object had sometimes only been to animate the industry of the settlers confided to his care, among whom the exterior practices of religion were frequently nothing more than pretexts for idleness; and that when he declaimed against the ill consequences of celibacy, his view had merely been to encourage population, so necessary to the prosperity of his country.

This defence appeared neither respectful nor satisfactory. It was alledged against him as a crime, that he had used every means of eluding the justice of the Holy Office; had intercepted letters to engage the witnesses brought against him to retract; and these circumstances were all proved by writings under his own hand.

In short, the tribunal adjudged him attainted and convicted of every charge made against him; and, in consequence pronounced his sentence, which declared him *formally an heretic*. He interrupted the reading, by denying that he deserved so harsh an appellation. This was, during the final and terrible sitting, the last effort of his firmness. He fainted on the bench on which he sat, and as soon as he recovered himself, the reading of the sentence was continued. It confiscated all his property, declared him incapable of holding any employment, exiled him to twenty leagues from Madrid, from every place of royal residence, from Seville, the theatre of his fallen authority, and from Lima his country; it condemned him to be shut up eight years in a monastery, where he was to peruse such works of piety as should be put into his hands, and go to confession once a month. He afterwards made his solemn abjuration, and, with all the ceremony prescribed by the canons, was absolved from the censures he had incurred.

Those who were present, it will readily be conceived all orthodox, declared that he shewed the most unequivocal marks of resignation and repentance, and that it was impossible to refuse him their compassion.

It has been asserted that the personal clemency of the monarch, and that of even the grand inquisitor mitigated the rigour of his sentence; that some of his judges were of opinion he ought to suffer death, and several a public punishment; one of these rigorous sentences was supported by the King's confessor, whose fanatical zeal for the cause of God, made him believe the scandal could not be repaired but by a public example.

It was however difficult to learn the rest of the secret particulars of this affair. Curiosity and indiscretion were restrained by fear. A conjecture, a question, might be misinterpreted and embitter the life of the author. People were in a situation something like that described by Tacitus, in the life of Agricola: *Adempto per inquisitiones et loquendi audiendique commercio* *; or that of a more modern and still more dreadful period.

It must however be observed in favour of the Spanish government, that this crisis did not continue long. The mind became more easy by reflecting upon the known benignity of the disposition of Charles III., and the enlightened character of his minister, who was adverse to fanaticism.

Even the situation of the victim contributed to dissipate public terror. His talents and good fortune had excited the notice of envy before he had incurred that of the Holy Office; and citizens, somewhat calmed, trusted to their obscurity for shielding them from the rigour of this tribunal. The result shewed that it was but transitory, and that the privy councils of the King were governed by milder maxims.

M. Olavidé was scarcely confined in a convent of La Mancha, before, complaining of the ill state of his health, he obtained permission to go and drink the mineral waters in the neighbourhood; and afterwards the liberty to go to others in Catalonia, which he hoped would prove more efficacious. There near the frontiers he easily deceived the vigilance of his keepers, and bidding adieu to his country, which still was dear to him, escaped to France, where he was preceded by his reputation, and received as a martyr to intolerance. Some months after his flight the court of Spain reclaimed him, but that of France replied in a friendly manner, that the offences of M. Olivadé, however heinous they might appear in Spain, did not come within the description of those, the authors of which civilized states had reciprocally agreed to give up; and the court of Madrid insisted no farther.

Ten years after his evasion, the French revolution which he had predicted, and, no doubt, desired, taking place, towards the end of his career, presented him with a spectacle of a novel description. He heard the rumbling of the thunder about him, and had, at a time, some apprehension from the storm. He underwent the dreadful horrors of suspense in the memorable reign of *terror*, and learned what fifteen years before had never entered his mind, that there was under heaven somewhat even more terrible than the Inquisition. Since then he has retired to a country-seat near the Loier. In this spot his busy brain has attained a calm, without his heart being chilled. A religion, better understood than that of which he was about to die the victim, offers him its consolation, literature its resources, and solitude its sweets; so that by a strange concatenation of circumstances, the Inquisition for once, doubtless the first time, has made one wife and happy man †.

Since

* Spies put an end to the use of the faculty of hearing and speech.

† When I wrote this in 1797, M. Olivadé little thought of revisiting that country which had proscribed and punished him, and from which he had escaped as a fugitive: but age, misfortune, and attention to the conduct

Since this event the Inquisition has, in one case, justified the apprehensions it excited. Toleration, or, which is the same thing, humanity, shuddered at the torments inflicted upon a poor woman, who, having been *convicted of sorcery and witchcraft*, was burned at Seville in 1780, in consequence of the sentence of that tribunal.

Except in these instances, its authority has been exercised only on some individuals, who, having used irreligious expressions, have been pardoned upon retraction, after undergoing a trifling penance.

I was at Madrid in 1784, when a circumstance happened which proves that this tribunal, notwithstanding the terror its forms have ever inspired, is sometimes less severe than many secular courts of justice.

A beggar, who generally took his stand at the door of a church, had employed his leisure in inventing and selling a species of powder to which he attributed miraculous effects. It was composed of ingredients, the mention of which would make the reader blush. The beggar had drawn up some singular formularies to be repeated at the time of taking the powder; and required, to give it its effect, that those who took it should put themselves into certain postures more easily imagined than described. His composition was one of those amorous philtries, in which our ignorant ancestors had so much faith; his, he pretended, had the power of restoring a disgusted lover, and of softening the heart of a cruel fair one.

Whatever flatters our passions has some claim to our credulity. The impostor wanted not for customers in that class over which the marvellous has so much empire; and a few accidental successes gave reputation to his nostrum. He associated himself with some women who distributed it. His powders, however, as it will easily be believed, were often employed without effect. Most of the persons whom he deceived, less irritated than ashamed, kept profound silence; but, at length, others made complaints which were soon carried to the Holy Office. The beggar was arrested, and led with his accomplices to the Inquisition, where they were prosecuted in form.

The impudent empiric avowed every thing; he explained the composition of his powder, and gave up his receipt and formularies. The result was one of the most singular proceedings which ever came before a tribunal. The day of vengeance arrived. The judges, criminals, and a crowd of spectators of both sexes assembled in the church of the Dominican nuns at Madrid. Divine service was begun, but afterwards interrupted to read the strange proceedings. The temple of the Most High was not supposed to be profaned by a recital of the obscenities contained in the summary. Such were the laws of the Holy Office, nor were these dispensed with in the least in favour of some women of quality, who hid their confusion behind their fans. Even the nuns, less attached to their scruples than to the privileges of their church, lost no part of the ceremony, and their modest ears were insulted with the shameful relation. The sentence was pronounced, and executed after mass was over.

conduct of others, brought him back a convert to that religion he was charged with contemning. Not only did he frankly profess Christianity, he employed his leisure in composing an apology in a long work which he published, and which being known in Spain, caused the sincerity of his conversion to be no longer disputed. He met with advocates about the throne, and what was more difficult, even in the formidable tribunal, the author of his persecutions; which for once recalled to mind that the Divine Legislator, whose vengeance they state themselves called upon to execute, *desireth not the death of the sinner, but rather that he turn from his wickedness and live*. M. Olavidé obtained permission to return to Spain, and arrived in Madrid in 1798. Ambition has now lost all empire over his soul, as well as all resentment; he shortly after withdrew to Andalusia, to the house of a female relation, the object of his earliest affection, perhaps the only one who survived his long banishment.

The beggar was declared attainted and convicted of malpractice, profanation, and imposture, and condemned to perpetual imprisonment, after having been whipped in the principal quarters of the city. Two women, his accomplices, were treated with more indulgence.

The three criminals soon left the church; they were mounted upon asses, and each clothed in a *sambenito*, covered with painted devils and other symbolical figures. They wore on their heads the fatal pyramidal bonnet called *coroza*. The man was naked down to his waist, and exposed to the eyes of the public a plumpness which could be attributed to nothing but the lucrative and extensive sale of his powders.

The procession was headed by the Marquis of Cogolludo, the eldest son of the Duke of Medina Celi, who, in quality of Alguazil Mayor, presided at the ceremony. He was followed by several grandees of Spain, associates of the Holy Office, and other officers of the tribunal. The windows were filled, and the streets thronged with curious spectators. The triumphant entry of a hero, returning to his country after having saved it, could not have been more pompous than the ceremony of which a vile criminal was the object; and this spectacle by which curiosity was so much excited, unlike to others of the same kind, offered nothing which might wound sensibility. Never was a sentence so well deserved executed with greater mildness. The criminal stopped from time to time, and scarcely did the executioner touch his shoulders with the whip, when some charitable hand presented him with a glass of Spanish wine to enable him to finish his career. It were to be wished that the Holy Office had never exercised greater severity.

In fact, this tribunal (I averred it in 1789, and repeat it in 1803,) is far from being so dreadful as in other countries it is generally believed; I shall not become its apologist by stating that our *lettres de cachet* were formerly equally revolting; neither shall I excuse it, by stating, that in the eye of philosophy in that nation which passed for the most enlightened and humane, for eighteen months together we have witnessed the most shocking representation of judicial iniquity that ever stained the page of history. It is not by citing superior atrocities that the smaller can be mitigated, I shall therefore own that the forms of the Inquisition are terrifying, even to those who are persuaded of its equity. Prosecutions are carried on with the greatest secrecy; the advocate granted to criminals to make their defence cannot speak to or see them but in the presence of the inquisitors. But the most odious proceeding of all is, that when the depositions received against any person accused are communicated to him, the names of the accusers are carefully concealed. If the Holy Office were to prosecute criminals publicly, and name and confront their accusers; were it to allow them every means of proving their innocence, would its laws be less observed, or would the sacred interests committed to its care be less attended to? Let it not be said, that most informers would be restrained by a false shame by the fear of exposing themselves to the indignation of the public and the resentment of the accused. No, surely the Holy Office dare not avow an apprehension lest its victims should be fewer! Is that God which it worships so thirsty of human blood, so covetous of guilty persons and victims? If this were his religion, never was a more dreadful present to mortality.

I am willing to allow to those who consider this as the only true religion, that its pure doctrine, and a respect for the worship of its followers, are conducive to public happiness and tranquillity; and that such as presume to make violent attacks upon either are deserving of being restrained, and even punished. — But gratitude towards benefactors, fidelity of servants to their masters, charitable indulgence towards our fellow-creatures; is the exercise of these virtues, inquisitors, less acceptable in the sight of Omnipotence than

than orthodoxy? and would the cause of the Almighty suffer from motives powerful as these preventing accusations?

Besides how do other tribunals find means of detecting the guilty? The public body whose duty it is to prosecute offences, is it insufficient to discover those whose apprehension is necessary for the sake of society or religion; and is it common for crimes against either of these to escape the sword of justice?

And as for such as might escape without the concealment of the witnesses whose indignation they may have incurred, does not the publishing of their transactions or language occasion more real injury to religion than what their being left unpunished could possibly do? And when the God you worship (I was about to say that you traduce,) cursed "the man who first invented scandal," did he not intend to include the publisher of scandal?

Thus in case of my having to appear before the Holy Office, thus should I address myself to it. But I would acknowledge at the same time, with no expectation of disarming it, but merely with a view of doing homage to truth, that the Inquisition, if its forms were overlooked, and the object of its institution, might be cited as a model of equity. Let it not be said that the malice of a secret enemy is sufficient to call down its vengeance; it condemns no one upon the testimony of one accuser, nor without discussing the proofs of the charges. Serious and repeated crimes are necessary to incur its censures; which, with a little circumspection in words and conduct relative to religion, may be avoided, and men live as little molested in Spain, as in any other country in Europe.

I will say more, during my last stay in Spain, which was for the space of more than a year; I do not remember to have once heard the name of the Holy office, nor was I able to obtain one other single anecdote to add to the horror to which I had devoted it, notwithstanding the apologetical manner with which I was reproached with having spoken of it. Not that at the time I speak of (1792 and 1793) it had become less rigid; but more immediate objects, more imminent dangers, the consequence of the progress of our revolutionary principles, called for and seemed to absorb all the faculties of the Spanish government. Persecution was less extended towards the atheistical French, than the French imbued with maxims formidable to despotism, and too much inclined to the propagation of them. The Alcaldes, the Corregidores, the commandants of towns, the governors of provinces, all had become political inquisitors more vigilant and far more formidable than the reverend fathers; so that the latter relying upon the active zeal of their substitutes seem to hold vacation for a period of time.

It was consequently in my first journey into Spain that I acquired the greater part of the materials from which I have attempted a draught of the Inquisition.

I must add to what I have before observed, that, of all strangers, the French have been constantly the principal objects of its restless vigilance.

The troublesome zeal of many of its commissaries in the provinces, occasions them to be persecuted for the slightest matter, frequently disturbing the quiet of the inhabitants, by domiciliary visits for the purpose of seizing licentious prints, or prohibited books; oftentimes it is true this excess of zeal is condemned by the court, or the grand inquisitor, which office, during the last and the present reign, has been uniformly occupied by prelates of sense and moderation. I have seen some specimens thereof, one of the most striking of which is the following.

About fifteen years ago, some French merchants at Cadiz, having received a consignment of leather from one of our manufactories, were much alarmed at seeing the officers of the Inquisition enter their houses. They desired to see the leather newly arrived

rived and having observed that it bore the image of the holy virgin, which was the mark of the manufacture, exclaimed against the profanation; remarking that the leather being intended to make shoes, the image of the Mother of Christ ran the hazard of being trodden under foot, and consequently it was confiscated. The affair was referred to the supreme tribunal at Madrid. The charge was made out and was for some time in my possession, for the merchants, much alarmed, had recourse to the court by means of their ambassador. The court and the tribunal received the complaint in the manner it merited. The officers of the Inquisition were enjoined not to molest strangers under such trifling prettexts, and the merchants recovered their leather without further trouble.

On other occasions, still more recent, the minister and the grand inquisitor himself, have protected the inhabitants against the cavils of the subalterns of the Holy Office. At Barcelona they attempted to give disturbance to a French house, because its members were Protestants; and when it was observed to them that the English and other northern nations were tolerated in Spain, notwithstanding they were heretics, they answered, that the Catholic religion was the only one in France. The cause, however, of this persecuted house was no sooner brought before the court than it was gained.

In fine, though it must be admitted that bigotry is more prevalent in the provinces than in the capital, no great inconveniences can ever arise from it; because the sentences of the provincial tribunals have no force until they have obtained the sanction of that of Madrid, which, on that account, bears the name of *Suprema*. Besides, the court scrutinizes more strictly than ever the proceedings of the Holy Office, and certainly not with an intention of increasing its severity. It was enacted, in 1784, that when the office should have finished the prosecution of any grandee of Spain, any of His Majesty's ministers, any officers in the army, member of a tribunal, or any person in place, the whole proceedings should be laid before the King to be revised and examined. By this law the principal persons in the kingdom have obtained an additional security against the arbitrary rigours of the Holy Office. It is to be regretted, that it was calculated to defend those who cannot want protection rather than those whose obscurity frequently renders their complaints ineffectual, and who consequently are exposed to be unjustly treated with more impunity. But where they have no part in framing the laws the people are almost every where either forgotten or oppressed.

The Holy Office to this day receives a certain tax from each vessel that arrives in any of the ports of Spain, in consequence of the examination it is authorized to make in order to see that the vessel contains nothing that may be offensive to religion. The search has for a long time been neglected, but the duty is still paid to the office. Were this the only complaint against the Inquisition, we should easily be reconciled to it.

In 1789 I concluded this long article on the Inquisition with a hearty desire that the sovereigns of Spain might consider themselves sufficiently sure of the submission of their subjects, of the watchfulness of their temporal courts, and of the enlightened zeal of its prelates, to make this tribunal wholly unnecessary. I am however apprehensive that after what has happened latterly in Europe, the object of my desire is wider of its completion than ever. I fear that sovereigns, however wise they may be, from a jealousy of a diminution of their authority, will foster more than ever such supports to their empire (shaken by the violent convulsions which have happened) as may yet remain; and that they will gain an additional argument in favour of institutions which tend to prevent the disorders of irreligion from the excesses of the loose philosophy which in France has exceeded all bounds. There appear more than one ground for this opinion. Since the establishment of peace between Spain and France priests have again acquired
their

their pristine ascendancy, the professorships of public right have been abolished, and the works of Macanay on the Inquisition have been reprinted. Whether to preserve quiet it be advantageous to muzzle and hoodwink a generous nation—whether it be a safer way to conduct it through the paths of darkness than by affording the use of the light of reason—whether in short, to use the language of despotism, a moderate government be not the most proper one for protecting the governed from the explosions of liberty, time must discover.

Before I quit the subject I shall take notice of a political body, which many strangers confound with the Inquisition, but which has no other relation with it than their common epithet.

This is the *santa hermandad*, much spoken of in Spanish novels; it is no more than a confraternity, dispersed over different parts of the kingdom of Castile, whose object is to watch over the safety of the country by apprehending those who disturb the public peace. It is subordinate to the council of Castile, from which it receives its regulations. One of the strictest is that which prevents its jurisdiction from extending to cities. The principal detachments from it are at Toledo, Ciudad Rodrigo, and Talavera.

Let us resume what remains to be said respecting the interior administration of Spain. We began with the council of Castile which lead us to the administration of justice, to legislation, and finally to the tribunal of the holy office. In the succeeding volume we shall take a view of the other different councils of the monarchy.

VOLUME THE SECOND.

CHAP. I.—*Council of finance of Spain.—Taxes.*

WE are now about to enter the vast career of finance, revenue, imposts, debts of the state, public debt, &c.—tiresome career, which frequently exhausts the patience of the minister who has to levy the taxes, and more frequently that of the persons who have to pay them; a barren subject, which possibly may weary many of my readers, on which account I shall be as short as exactitude will allow.

The finance department in Spain is under the direction of a sovereign permanent council, called *El consejo de Hacienda*.

This *Real Hacienda*, the name of which inspires a sort of terror, does not badly resemble the cave of the lion described by La Fontaine:

———Towards this cave
I trace full many a footstep go, but none
Of beast returning.

The supreme guardian of the *Real Hacienda*, the council of finance, is as well as that of Castile divided into several chambers, or *Salas*, *la sala de gobierno*, *sala de justicia*, *sala de millones*, and *la sala de la unica contribucion*.

Their names sufficiently indicate their functions.

The *contaduria mayor* is a sort of chamber of accounts whose decisions are sanctioned by *la sala de justicia*.

It must not be confounded with *la contaduria de valores*, a particular office whose business it is to keep an account of the rental of the kingdom, of grants, and privileges.

Nothing can be more complicated than the forms which are to be gone through in passing the different offices before you attain the royal treasury—forms which owe their origin as much to a salutary mistrust as to chicanery. Woe to creditor, woe to the solicitor who has to trace the windings of this labyrinth.

The royal treasure is kept by two general treasurers, who are alternately in office for a year, and pass the year they are out of office in clearing their accounts.

Three general directors receive the royal rents, and have under them the collectors, and commissioners of duties, and their numerous fiscal agents, a legion formidable for its number and its talents. There are none in their way in Europe superior to these people; if they were as incorruptible as they are vigilant they might be taken for models. I had occasion on my first journey to Spain to appreciate the value of this class of Spaniards; and on my return in 1792 I perceived to my cost and that of a number of appellants of whom I was the organ, that it had yet made improvement towards fiscal perfection. Events, augmenting the animosity of the underlings of office towards the French, tended to sharpen their intermeddling genius, which at times was at its *ne plus ultra*. Whenever desirous of comforting myself for having no longer any relation with Spain, I have but to recollect its administrators of the customs, its judges of smuggled goods, and inspect its whole tribe of tax-gatherers.

Let us examine how much arrives at this treasury, so well defended against besiegers, so frequently pillaged by its defenders; how much these revenues so harshly collected amount to. Up to 1714 all the revenues, as well of the interior as of the customs, were farmed. At that epoch government took the collection into its own hands. Two years afterwards the taxes of the interior were farmed and continued so until 1742. The people suffered, as is the case where the taxes are farmed in every country. Representations were made to Philip V., which stated all the irregularities in the collection. The representation of 1734 may be found in the *Economia politica de Zabala*; and in the institute of Don Martin de Loynaz, that of 1747. It is only necessary to read these to be convinced, that wherever there are men there will be abuses, and to learn the lesson of being ourselves less affected at those to which we are witnesses or victims.

Campillo, however, who had passed through all the offices of administration, and who possessed firmness and extensive knowledge, had frequently asked the Spanish farmers-general what they gained by their farms; according to their own accounts, they were constantly loafers. Campillo, determining to learn the truth, suddenly put six of the twenty-two provinces, of which Castile is composed, into commission. In 1747 the Marquis de la Ensenada extended this measure to the remainder, and since that time nearly all the collection of Spain has been managed by commissioners.

Two years afterwards Ferdinand VI. adopted a project which had often been agitated in Spain, that of converting into one contribution those which form what are called provincial rents. In 1749, a commission was established for this purpose, under the name of *Sala de la Unica Contribucion*. It employs thirty thousand persons, and its annual expence is upwards of three millions of livres (125,000*l.*).

Until the operations of this chamber shall have answered the purpose for which so much care and money have been applied, the defective form of the chamber of finance will remain; the people suffer by it, and good citizens loudly complain; but the sovereigns of the present family have not yet been able to find a remedy.

The finances of Spain are divided into two classes, which compose almost all the revenues of the King: *General Rents* and *Provincial Rents*.

The first arise from duties paid at the frontiers upon merchandize entering or going out of the kingdom. The duties are different with respect to their name and proportion

tion in different provinces. In those where the Moors longest resided, they have preserved the Arabian name *Almojarifazgo*, first given to a custom-house duty that has been successively increased, and upon which the Spaniards have speculated more or less advantageously with commercial nations. It is still known by the same name in the Canary Islands, where it produces the King six per cent. upon all merchandize.

In most of the other provinces it has been increased by degrees to fifteen per cent. upon every article of importation or exportation. In Catalonia, they are not so much as four per cent. *ad valorem*.

Notwithstanding its privileges in Navarre, a duty is paid of five per cent. upon every commodity entering its exterior frontier, and three and a half on exportation.

Hence it already appears, that the finances of France were not the only ones which were complicated, different in different places, full of exceptions, and exposed to the caprice of collectors. What I have mentioned is but a slight sketch of the complication of those of Spain.

Besides these general laws which extend to the greatest part of merchandize, there are several articles, such as cocoa, chocolate, sugar and paper, which pay particular duties.

The whole produce of the general rents when they were farmed did not amount to six millions and a half of livres. A few years after they were put into commission they produced ten millions, and have since rapidly increased.

In 1783, at the close of the American war, they produced a total of ninety-six millions of rials; 1784, one hundred and twenty; 1785, one hundred and twenty-eight and upwards.

There are some other duties which may be included in the general rents, although differently collected, and their produce enter not the same chest; such are

The duties of the *office of health*, first established at Cadiz, and since extended to the other sea ports of the kingdom.

The duties of the *grand admiral*, which were appropriated to the treasury by Ferdinand V. in 1748.

Two other duties, one under the name of *Lanzas*, the other of *Medias Annatas*, which we have spoke of under the head of titles, and which collectively in 1787 produced 5,400,000 rials.

The *rent of wools*, which is the duty paid according to their quality on exportation. It was farmed at less than 12 millions of rials. In 1777 it produced more than 20 and in 1789 nearly 28 millions.

The produce from *the sale of salt*, which is in *estanco*, that is, exclusively sold for the King's account, throughout all his European dominions. This tax was for a long time very unproductive. In 1785 it scarcely yielded 16 millions of rials, but then the measure of from 60lb. to 80lb. weight was sold for a rial (that is, 2½d. sterling,); but the price of the measure being raised, it produced in 1789 about 56,000,000 rials. It has been further productive, from the war having caused the price to be augmented. For, in Spain, to the injury of the country and to the misfortune of its inhabitants, objects of the first necessity are those on which all taxes and augmentations are imposed.

In other respects, the price of salt is uniform through Spain, with an exception of some drawback afforded in the ports for such as is used for the fisheries. The salt-pits of Andalusia, and the dry salt-pits collectively, are insufficient for the consumption of the kingdom; great quantities are therefore brought from Portugal. Seizures and executions are rare in Spain with respect to salt; the avidity of the treasury being less rigorous with respect to this article than others.

The *duty on tobacco* is a particular branch of revenue in Spain. It has been collected by commissioners ever since 1731, and has a particular administration.* In 1785 there were but two sorts of tobacco: viz. smoking tobacco from the Brazils, which Portugal, by virtue of a contract, delivered at 2 rials per lb. and which the King re-sold at 40 rials; and tobacco pulverized, or snuff, known every where by the name of Havannah, or Spanish snuff, and which comes from Cuba. The King pays rather a higher price for this than for Brazil tobacco. In 1785 it was sold at the same price of 40 rials per pound; from the sum of the produce of the sale the salaries of the persons employed were to be deducted, and the expences of the manufactories, the principal of which is in Seville; all which charges increased the cost to the King per lb. to 8 rials.

For a long time the government prohibited the use of all other kinds of snuff, called *rappee*, to distinguish it from the real Spanish snuff, which is powdered exceedingly fine, and coloured with a kind of ochre called *almazaron*, which gives it its tinge and unctuousity.

In spite of, or rather on account of the rigorous laws, and the vigilance of the persons employed, who on this occasion take upon themselves to behave in the most insolent manner towards strangers, particularly such as arrive by sea; Spain was inundated with smuggled tobacco; and the only persons who gained by the prohibition were those who sold it underhandedly, charging even as high for it as a guinea per pound, in order to cover the risk they ran in thus satisfying the decided taste of men for what is forbidden. This taste was participated by all classes of Spaniards, by those especially who should have recommended abstinence by their own example. The members of the diplomacy alone were exempt from the regulation, and even they required an express permission from the minister of finance, for allowing the entry of the quantity of *rappee* requisite for their consumption. The two predecessors of the reigning Sovereign had a settled objection to the use of this tobacco, which had somewhat of mania in it; and should any about them have presumed to take it, it would have been exceedingly difficult for them to escape disgrace*.

At length, the Spanish government was convinced, that the only mode of curbing this addiction to smuggling, was to cause *rappee* snuff to be manufactured, and vend it for its own account. No nation had more advantages for this kind of speculation than she herself possessed: the cultivation of tobacco has succeeded in the greater part of her colonies; in Mexico, on the coast of Caraccas, at the isle of Trinidad, and particularly in Louisiana. As for Mexico, in which country the culture of tobacco was not begun before 1765, the King in 1778 drew from it four millions of hard piastres, and six millions in 1784. Galvez, the minister for India, intended the tobacco of Louisiana, which is cheaper and better, should furnish the consumption of Mexico, and by degrees the rest of Spanish America.

The sale of tobacco is one of the most considerable branches of the royal revenue. In 1776 it amounted to more than 87 millions of rials. In 1777 to 85 and upwards. In 1784 to about 73. The introduction of *rappee* snuff rapidly increased this receipt.

* Charles III. himself had a great predilection for *rappee* snuff, but only indulged his inclination by stealth, and particularly while shooting, when he imagined himself to be unnoticed. The following anecdote will serve to shew how much Ferdinand VI. in other respects humane and good natured, was looked upon as severe towards those who infringed the laws relative to proscribed tobacco. One day in his presence, a grandee of Spain drew a snuff-box from his pocket full of *rappee*. The King cast a threatening look upon him; when the French ambassador (M. de Duras) perceived it, and, advancing towards the Spanish nobleman, exclaimed, "*Oh! it is your Excellency who has my snuff-box, I could not think what had become of it.*" This fortunate expedient released the delinquent from his embarrassment, and dispersed the anger of the King.

In 1787 it amounted to 129 millions, and since the last war it must have been much more. The King, in order to meet the current expences, having been obliged to augment the greater part of the indirect taxes, raised the price of rappee from 26 rials the pound to 42. Possibly this augmentation will long survive its origin.

Many sorts of rappee are manufactured in Spain, some of which are equal to the snuffs of other countries; this however does not hinder the latter from being sought after with nearly as great avidity as before, having a double attraction, in being prohibited first, and secondly in being less dear.

There are also other articles in *eslanco* besides salt and tobacco. These are lead, gunpowder, cards, Spanish wax, and stamped paper. Brandy and other spirituous liquors are not properly in *eslanco*. The sale of them has been free throughout the kingdom since 1746; but the following year the council proposed to establish a magazine for the King's account, and most people prefer purchasing there because the liquors are better and cheaper. Such a monopoly is commendable, and cannot fail of being admired.

I omit several other small impositions, the detail of which would exceed the bounds prescribed to my work.

But the most reprehensible part of the taxes of Spain is the *provincial rents*: a species of impost which, chiefly falling upon the consumption of the most necessary articles, burdens the people, and is one of the greatest obstacles to industry. For two ages and more the good citizen has exclaimed against this impost. Government is indeed convinced of its impropriety. The minister Campillo conceived the project of a total reform, but was dismayed by the trouble and the danger it presented. La Ensenada, one of his successors, with greater power and more courage, went a little farther, but we have seen his *unica contribucion* is only yet a project. Unhappily the system of Spanish finance depends on circumstances which it would be necessary to change for its amelioration. Besides which, the continual urgency of state necessities has never permitted government to risk the security of its revenues by experiments which might create confusion, or the success of which might be dubious. We have seen in France what it cost M. Turgot and M. Neckar to plan a similar reform. To produce it in Spain favourable opportunities are necessary, and a sovereign and ministers who should not be alarmed at the clamours ever excited by innovations, or a French revolution would ensue. But it is not every country which is alike disposed to provoke, nor equally susceptible of bearing one; and if Spain be destined to experience this happiness, or this scourge, it is not improbable that the cause will be its finances. Those who are the greatest sufferers are too widely dispersed, too ignorant, have too few means of communication, and are consequently too easy to be kept in restraint, either by a military force or the clergy, for government to fear; and France has given a lesson to sovereigns which they will not fail to profit by, so as not to neglect the two supports in their possession for upholding their authority, the sword and the gown. The most moderate, the most beneficent will doubtless endeavour to render their yoke supportable. They will lessen the burthen of taxes, will avoid giving cause of complaint to their subjects; but they will take especial care not to invite them in a fatherly manner, to come and present their quires of sufferings; and the States General of France have dealt a death-blow to the Cortes of Spain.

Until some circumstances may operate a reform, the subjects of the Spanish monarchy are exposed to a most destructive system of taxation.

The *provincial rents* are,

1st, The produce of a duty upon wine, oil, meat, vinegar, candles, &c. Philip II., overwhelmed by the weight of the ruinous enterprises to which he was impelled by his ambition, proposed it to the Cortes in 1590, who consented upon conditions, most of which

which have been violated. This grant, which has since been renewed every six years, and has had different augmentations, is called the *servicio de los millones*, because it was levied to raise a certain number of millions of ducats. This impost is collected in two modes, either immediately by the commissioners of finance, or by way of subscription; nor *en-cabezamientos*.

The second method has only the advantage of diminishing the number of persons employed by the treasury; but it is in reality more oppressive to the people. The contribution for which many cities, boroughs, and communities subscribe is arbitrarily exacted by the magistracy of each, who establish a public magazine or warehouse, (*abafo*,) where individuals are obliged to purchase *by retail* the articles subject to the duty. The lower classes of people who cannot, like persons in easy circumstances, *lay in a stock*, feel all the weight of this odious policy. Their houses are searched to see that they consume nothing but what they purchase from the *abafo*; hence arise oppressive prosecutions, which sometimes to those least able to afford, causes their proportion to be double what it should be towards the sum the city or community to which they belong has subscribed.

2dly, The *provincial rents* comprise the *alcabale*, a duty paid upon the sale of all moveables and immoveables.

This was first granted by the Cortes in 1342. It was then but a twentieth of the thing sold. In 1349 it was increased to a tenth, and rendered perpetual. In the sixteenth century it received four additions, each an hundredth part; whence it received the name of *cientos*.

These two duties united, and collected together under the common denominations of *alcabale y cientos*, ought therefore, strictly speaking, to amount to fourteen per cent., but they vary in different cities and provinces according to the privileges granted by the sovereign, which in some places have entirely superseded them; and they are no where levied to their utmost extent. According to Ustariz, and such observations as I have been able to make, their average is about six or seven per cent. Notwithstanding these modifications they do not prevent the tax being highly burthensome to trade and industry.

3dly, The *tercias reales* are another impost jointly collected with the provincial rents; it is the two-ninths which the court of Rome since 1274 permits the Kings of Spain to receive upon all the tenths of their kingdom. It is received in kind from the produce of the earth, and is afterwards sold for the King's account. This impost scarcely produces six millions of rials; and would be susceptible of a considerable augmentation, did not government, in collecting it, trust to the unfaithful statements of the ecclesiastical offices.

4thly, The *ordinary and extraordinary service, and its fifcen in the thousand*, is a species of tax paid by the plebeians only, who in Spain are known by the denomination of *estado general*. It is collected with the *alcabale y cientos*, according to an assentiment made by the tribunals, in proportion to the known property of each of the contributors.

5thly, There is besides an impost upon the sale of *jouda* and *barilla*, with some other particular taxes, which cannot be enumerated in this general account.

Lastly, The duties of entry into Madrid form another source of revenue to the king; they are at present farmed out to the community of *Gremios*, at seven millions and a half of reals. All the interior contributions of the provinces of the crown of Castile produce about 120 to 140 millions of rials, (or somewhat above one million four hundred thousand pounds sterling).

The provinces of the crown of Arragon have another form of taxation. They are exempt from the *alcabala*, for which equivalent duties are substituted; they pay one general contribution, which each city, borough, and community assesses proportionately on its inhabitants. As these provinces were the last to acknowledge the authority of Philip V. that monarch, to punish their obstinacy, deprived them of a part of their privileges, and established a form of taxation different from that of the crown of Castile. But his intention was evaded; and, in fact, they are better treated in this respect than the rest of the kingdom.

The provinces of the crown of Arragon are besides subject, like those of Castile, to the impost called *tercias reales*, and obliged to take, at a fixed price, the articles salt, tobacco, lead, &c. which are sold for the King's account. Both are alike liable to the *bull of the Crusade*.

The primitive object of this bull was to grant indulgencies to those Spaniards who should contribute, either by personal service or subscription, to support the war against the infidels. The destination of the produce of the bull is still the same, since the Spanish monarchs who receive it are obliged to apply it to the support of their fortresses and garrisons upon the coast of Africa. Until the reign of Ferdinand VI. this grant of the court of Rome was to be renewed every five years; a subjection, of the inconvenience of which Philip V. was sufficiently sensible on three different occasions, when his quarrels with the Holy See prevented him from obtaining a renewal of the bull. It was not until the compact of 1753 that it was made perpetual: since that time it has become a constant source of revenue to the treasury; and if Spain, influenced by motives of policy and humanity, should become reconciled to every infidel nation, as she has been under the present reign to the Ottoman Port, and some of the Barbary regencies, this tax, though inapplicable to its original purpose, would not the less continue to be levied.

The price of the bull is fixed at 21 quartos, about 14 or 15 sols (7d. or 7½d.) No Catholic in Spain can dispense with buying it without having his orthodoxy suspected. Provided with this bull, besides the indulgencies annexed to it, *he has the liberty of eating meat, with the consent of his physician and confessor, as also to eat eggs and milk on fast days, and during Lent.*

This species of voluntary taxation is received by the magistrate, who bears the title of *Commissary-general of the Cruzada*; it produces to the King from eighteen to twenty millions of rials.

The clergy are not exempt from it, nor is this the only tax they pay.

In the first place, they are in part subject to that of *los millones*; but to this it is necessary the pope should consent every six years by a brief. As there are many places where separate accounts are not kept for ecclesiastics, they pay the whole tax in common with the laity; but the consumption which each ecclesiastic makes in wine, oil, and other articles subject to the *millones*, is carefully estimated and always in their favour. In this manner a calculation is made of what they ought to pay of the tax, and they are reimbursed whatever they have paid above this estimation.

But, as in most cases, actual fact differs a little from right, the clergy pay next to nothing of the *millones*, in the smaller districts, where they easily acquire a preponderance, and the weight of the tax falls upon the body of the people.

There is another trifling impost called *subsidio*, to which ecclesiastics are also subject.

But the greatest contribution levied upon them is the *escusado*, which also is denominated *casa dezmera*, *tenthed house*, because it consists in the right granted by the Holy See to the Kings of Spain, to appropriate to themselves the most advantageous tithe of each parish, as well of the crown of Castile as that of Arragon. This contribution, were it exactly

exactly levied and collected, would bring a very considerable sum to the Spanish treasury; but it has been made an object of speculation and subscription, which has considerably diminished its produce. Under the reign of Ferdinand VI. a resolution was taken to discover what it really would produce, and for this purpose it was for some years managed by commissioners. But before sufficient information was obtained, the Marquis of Squillac, coming to the administration of finances almost at the same time that Charles III. ascended the throne, was too much in haste to farm it. And notwithstanding it was proved in 1756, that for the crown of Castile alone it might be stated at 16 millions of rials, the minister of finances farmed out the whole of the *escusado*, for Arragon as well as Castile, at twelve millions, to the corporation of merchants at Madrid, commonly called the *Gremios*; and since then a part of the clergy have obtained a power of managing it on their own account, with which privilege they were allowed an abatement of one-third, so that in 1779 it did not produce more than ten millions.

Notwithstanding these restrictions, if we observe that the *tercias reales* are still an indirect impost on the clergy, and at the same time recollect that the Kings of Spain have the power of granting pensions upon all benefices, even to a third of their produce, we shall find there is little foundation for the assertion, that the Spanish clergy do not contribute to the expences of government. Moreover, subsequent to the war terminated by the treaty of Basle, with the permission of the Holy See, the clergy was even more heavily taxed than the rest of the nation; the extraordinary assessments upon it on this occasion amounted to 36 millions of rials. This preference it certainly well deserved. It had exerted very successful efforts to inspire the people with the opinion that the cause of God was identified with the war against France. I have been satisfactorily assured that an offer was made by the general of an order to the King in 1793, to raise a corps of 40,000 monks, to be commanded by himself*. The offer was however not accepted. But the Spanish clergy not being admitted to serve the sacred cause in person, the government thought it reasonable it should contribute from its immense revenues.

It may be imagined, that Spanish America is one great source of revenue to the royal treasury, but hitherto its produce has been but trifling, if the revenue arising from the mines of Mexico and Peru, and the duties paid on the importation of its produce into Old Spain, be excepted.

For a long time the expences of the administration of these immense colonies were not defrayed by the revenues they produced; and it is only since the administration of M. de Galvez, that Mexico has yielded a surplus by the establishment of the farm of tobacco.

All the duties and contributions, of which I have given a summary account, produced in 1776 no more than 440,000,000 rials, in 1784 they produced 685,068,068, in 1787 only 616,295,657. This is the result of the account given by Lirena, the minister in 1789. This account, which will long be famous in the history of Spanish finance, although it be not the first of its kind, yet deserves some notice. Lerena, who up to the day of his death was considered a novice; whose rapid and inexplicable fortune caused in 1785 astonishment mixed with indignation, and who carried with him to the grave the hatred of the public, earned by his rigidity, his violent measures, and his persecuting, ungrateful, and vindictive spirit; Lerena was however firm and laborious; his *account* gives sufficient evidence of this. The new King, being desirous of establishing that reform in his finances which the happiness of the nation and the public voice

* It was Father *Joachim Compary*, at present Archbishop of Valentia.

required, ordered to be laid before him an account of all the suppressions that could possibly take place of officers employed in collecting the taxes. Lerena in his account began with an assurance, that, taking the diversity and complication of the imposts into consideration, any suppression whatever was impracticable.

In order to prove the inconvenience which, as he termed it, a *pitiful economy* would occasion, he cited, on one hand, the example of England, which, for the simple branch of the *customs*, had nine directors with large salaries, and drew from it on an average £3,789,274 sterling, (this was previous to the first war with France,) and, on the other, that of our famous general, who, having neglected to appoint inspecting clerks agreeably to the additional convention of 15th Jan. 1787, for the purpose of valuing the English merchandize allowed by the treaty of commerce to be imported into France, the revenue of that country was defrauded of two or three millions of livres, and France was inundated with a flood of English goods, to the material injury of her own manufactures.

It had been asserted, that the salaries of the officers amounted to at least one half of the taxes collected. Lerena affirmed this to be a manifest falsehood; and proved it by the following detail:

1st, The <i>general rents</i> , with which were joined those of the <i>admiralty</i> and of <i>health</i> , gave employment to 994 persons, who collected	Rials	Rials	59,108,172
Whose salary amounted to	-	5,375,127	
And that of the <i>resguardo</i> of the whole kingdom; that is to say, the guards for preventing fraud	-	5,501,322	
Collectively, therefore, the amount of expence was	-		10,876,449
2dly, The <i>rent of tobacco</i> and snuff produced in 1787			129,007,414
It occupied 4,587 persons at a salary of	-	13,631,530	
to which is to be added the allowance of 10 per cent. on all they fold granted to the retailers, in number 13,675	-	2,416,580	
Making a total of expence on the collection of	-		16,047,110
3dly, The <i>provincial rents</i> amounted in 1787 to 3150 persons employed, caused an expence of	-		122,857,678
Larena proved, that by useful reforms which he had effected, this branch of revenue had increased 14,350,124 Rials.			9,974,085
4thly, The <i>rent of salt</i> produced	-		55,408,934
It employed 1,515 people, at an expence of	-		4,676,844
5thly, The revenue from the duties on the exportation of wool produced	-		27,449,246
And the salary of 221 persons employed in its collection amounted to			635,943
6thly, The <i>revenue from powder</i> , with that of the mines of copper on the Rio Sinto, and that of the manufactory of cards for Spanish America, produced	-		8,468,124
Employing 290 persons, at an expence of	-		1,116,452
7thly, The <i>revenue from sulphur</i> produced	-		369,417
And the charges on it for its 8 collectors was	-		14,650
8thly, The revenue from <i>quicksilver</i> , and its accessories	-		436,844
The collectors of which received 8 per cent. on the amount	-		34,947
9thly, That from <i>cards for Spain</i> produced	-		1,072,649
And the 9 clerks were paid	-		44,944
			After

After thus presenting a general detail of the revenues collected by directors, and general commissaries, Lerena observed, that the persons employed in the different branches amounted to 10,729, whose salaries were - Rials 37,199,970 which formed a charge upon the amount received of about 7 rials

13 maravedus per cent., that amount being - 510,859,937

To these principal sources of revenue, 21 other articles remained to be added, collected by different administrators, and producing in 1787 - 105,435,720

The expence of their collection amounting to - 2,647,333 making about 2 rials, 17 maravedus per cent.

Recapitulating the preceding articles, the expence of collection altogether absorbed the sum of - 40,483,248

And the total of revenue amounted to - 616,295,657

So that the cost of the collection was in a ratio to the amount of 6 rials, 14 mar. per cent.

However, to this was to be added the expence of maintaining 3,571 guards, whose business it was to prevent smuggling, which cost 11,002,645

which added to the preceding sum, made the entire expence of collection - 51,485,893

General Recapitulation.

Total of persons employed in every shape - 27,875

Amount of their salaries - 51,485,893

The whole revenue - 616,295,657

Their collection consequently cost little more than a twelfth part.

Larena farther triumphed by comparison of this expence to that of the same description in England and France, in which countries, said he, there are no doubt a sufficient number of detractors of Spanish administration; and the result of the comparison appeared astonishing to the Spaniards.

At this time, said he, according to Smith, the revenue of England is - Livres 246,966,000

The expence of collection - 25,911,000

It consequently costs more than ten per cent.

In France, the revenue of 1789 being - 544,800,000

The expence was - 57,655,000

Thus did they each absorb more than a tenth of the whole revenue. Lerena added, that on his coming into administration, Spain had an annual deficit to cover of 40 millions of rials; that he had augmented its revenue more than 100 millions, and expected still to increase it 50 millions more. Death, however, did not allow him to realize these brilliant hopes; and the expences to which Spain became afterwards subject would otherwise have obliged him to forego his plan.

The remainder of his memoirs is but an apology for the courage and activity that he had displayed; a little master-piece of arrogance, in which he is neither modest with respect to himself, nor parsimonious of injurious expressions against the great, the rich, and the ignorant, in which classes alone, he assures the King, are there any calumniators of his administration.

As a representation of the revenues of Spain, there is nothing wanting in this piece. A display of its debts and expenditure is however a desideratum which is elsewhere to be sought for.

Rials

In 1776, the sum of its expenditure was	-	-	-	505,586,474
Of which the army cost more than	-	-	-	200,000,000
And the navy above	-	-	-	127,000,000

It is true in that year the navy incurred the greater part of this expence in a very short war with Portugal.

In 1777, the total expence was	-	-	-	476,385,565
Out of which the army cost more than	-	-	-	210,000,000
And the navy but little above	-	-	-	86,000,000
And as the whole of the revenue this year amounted to no more than	-	-	-	372,346,884
There was consequently a deficit of	-	-	-	104,038,681

Recourse was had to momentary and ruinous expedients to cover a part of this; but as at that time the government was employed in preparations for a war which shortly after happened, it was obliged to adopt means, not perhaps the best possible, but the most certain, by increasing, 1st, the provincial revenue

2dly, The revenues of the crown of Arragon	-	-	-	30,000,000
And 3dly, That of tobacco, by	-	-	-	12,000,000
	-	-	-	2,000,000

But the product being necessarily slow of receipt, only consequent, and probably over calculated, the minister of finance was obliged, in 1779, to extort from the society of the *Gremios* at Madrid, an advance of 50 millions, at $3\frac{1}{2}$ per cent.

These measures yet being insufficient, recourse at length was had to *royal notes*, of which we shall in future speak more largely.

In 1784, at the end of the war, the expenditure was - rials 685,068,068 and the receipt by extraordinary means was made to cover it.

In 1786, the whole revenue of Spain was	-	-	-	615,335,147
And in 1787, as we have before shewn	-	-	-	616,295,657
But the amount of debt was	-	-	-	1,543,906,944

Let us proceed to detail it, and advert to its source.

CHAP. II.—Ancient and modern debts of Spain.—*Gremios*.—*Royal notes*.—*Projects for the amelioration of the finances*.

THE sovereigns of the Bourbon family inherited from those of the house of Austria debts, called *Juros*, which, however, bear but a moderate interest. This is yet a charge to the state of about 20 millions of rials, (203,000l.) the payment of which is made from different branches of the revenue.

Philip V. left debts to the amount of 45 millions of piastres (about 7,500,000l. sterling). At his death, Ferdinand VI., terrified at so enormous a burden, and hesitating between the fear of making the state support it, and the scruple of depriving the creditors of their right, assembled a *junto*, composed of bishops, ministers, and lawyers, and proposed to them the following question: *Is a king obliged to discharge the debts of his predecessor?* It was decided in the negative. The conscience of His Majesty was quieted, and bankruptcy resolved on.

Ferdinand VI. carried his inconsiderate œconomy still further. Wholly employed in making savings, he suffered every branch of administration to languish; the army, fortresses, and colonies were neglected. When Charles III. ascended the throne in 1759, he found in the royal coffers upwards of 6,000,000*l.* sterling, and thought it incumbent on him to repair the fatal omission of Ferdinand VI. In 1762, he paid six per cent. of the capital due from Philip V., and continued paying annually the same for five years. In 1767, the dividend was reduced to four per cent. The following year sixteen millions of rials were distributed among the creditors; and in 1769, the expences of the state were so increased as to necessitate a suspension of further dividends; an interruption which gave the finishing stroke to the credit of royal effects. Whilst I was in Spain the first time, people were glad to sell their claims at a loss of eighty per cent.

However, there are some opportunities of disposing of them to greater advantage. Sometimes on treating with government upon any enterprize it wishes to favour, a certain portion of them is received at par. They are, moreover, received in payment of the *medias annatas*; but, except in these particular cases, the claims upon Philip V. are almost of no value; they bear no interest, and the entire liquidation of them, if ever it should take place, can only be considered as very distant, particularly to foreigners. For them, however sacred their claim, however powerful their advocates, they must seek in vain for exception from the law which forbids the payment of foreigners until such time as the nation's creditors be wholly satisfied. I have frequently heard the following proof related at Madrid: A valet de chambre of Louis XV. was a holder of one of these securities, and imagined he might profit by the favour shewn him by the King to obtain an exception. Louis XV. wrote with his own hands to Charles III. requesting he would grant it; but the Spanish Monarch answered the King, that he was obliged to refuse his request.

Charles IV., upon his accession to the throne, testified his wish of paying the debts of Philip V. and Ferdinand VI., pointing out those which he was desirous should be wholly paid, and those which the treasury might receive in payment of duties. Scarcely had these measures been sketched out, before preparations for an useless war, and shortly after the consequent expences, obliged him to suspend them.

So many aberrations from their purpose cannot but have greatly weakened the credit of the Spanish government. Of this Charles III., whose honest nature inspired universal esteem, twice had a vexatious proof.

In 1783, he endeavoured to open a loan of 180 millions of rials (about 2,000,000*l.*). One of the conditions of which loan was, that the claims upon Philip V. should be received to the amount of a third of the subscription. This, however, did not raise the value of the claims so much as was expected. At the beginning of the year 1785, it had scarcely produced 12 millions of rials, and it was soon afterwards closed. Foreigners were unwilling to expose themselves to fresh hazards; and as for the Spaniards themselves, they are in general suspicious, and have no disposition towards stock-jobbing. They prefer a moderate gain to hazardous speculations so eagerly adopted in some other countries; and are more than any other nation attached to ancient habits.

For a long time past, far from being tempted by foreign speculations, they confine their confidence to a company of merchants at Madrid, known by the name of *Gremios*, which we have already mentioned.

The treasure of the *Gremios* is a kind of public bank, in which individuals may place their money at the moderate interest of two and a half and three per cent. The foundation of the confidence it inspires, is the constant support which government has given

the Gremios, and the regularity with which they have always paid the interest of the capital in their hands; and although they may have hazarded speculations beyond their ability, and they be continually in advance to government, nothing hitherto has shaken their credit. They hold, as we have observed, the farm of the duties on entry at Madrid, and a small portion of the *escusado*; and are concerned in the principal manufactories in the kingdom. The government, which has frequently had recourse to them in cases of necessity, has long considered their bank as the chief pillar of the state.

Administration, however, has lately perceived that it could do without them. Necessity even made this a law. At the beginning of the American war, the state no longer having at hand the extraordinary resources required for the maintenance of its forces by sea and land in both hemispheres, and deprived of the periodical treasures brought from Spanish America, which it was unwilling to expose to the seizure of English privateers, thought it necessary to make use of a resource, until then unthought of in Spain. It made application to some French merchants established at Madrid, and negotiated by their means a loan of nine millions of piastres, (about 1,500,000*l.* sterling,) and issued paper to the amount of the same sum. This was divided into sixteen thousand five hundred bills, or *vales reales*, of six hundred piastres each, at an interest of four per cent. Government were blamed for not having established at the same time a bank, at which these bills might have been paid in cash on presentation; but disposable funds would have been requisite for such a measure, and the simple creation of paper-money proved that of such they were deficient.

The court was blamed, with more apparent reason, for having negotiated the loan upon disadvantageous terms, which betraying its embarrassment could not but diminish public confidence. In fact, the bankers who by their credit realized the loan, asked ten per cent. commission, and obtained it. But in such negotiations the lender calculates his risk, and the borrower his necessities; hence arises the law which one imposes and the other receives.

However this may be, as soon as the negotiation was made known of the motives and securities, alarm became general. All exclaimed against a measure which, said they, the most extreme distress could scarcely excuse; a measure sometimes taken to discharge pressing debts, but never to contract new ones. Foreign bankers, who had advanced their money, stated, through the medium of Mr Necker, that they were taken by surprise, and intimated deception, seeming to suspect that the Spanish government had conceived the wild scheme of re-imbursing them in paper, or the ridiculous hope of giving this paper a value out of Spain. It lost not a moment in removing their fears, and proving to them by actual reimbursements, how little foundation there had been for alarm.

Nevertheless the bills circulated in Spain. But the temptation of a greater interest than that commonly paid for ordinary subscriptions was not sufficient to give them credit. Every person took as few of them as possible, and was eager in passing them again. In course of the war they were at a loss of twenty-six per cent., and the people exclaimed loudly. They knew not that at the same time the Americans, fighting for their liberty, almost entirely destitute of coin, saw their paper-money fall to forty and fifty per cent. It was not foreseen that a neighbouring nation, struggling for the same cause with almost all Europe, would have paper of which four and five hundred should be given for one, and yet survive the crisis.

This momentarily critical situation of government was a new triumph for the *gremios*. The credit they enjoyed was increased by the diffidence with which the bills were received.

ceived. Their bank seemed an asylum to which people resorted to lodge in security the money they thought exposed to danger in the hands of government.

In the mean time, the necessities of government increasing with the continuance of the war, new bills to the amount of five millions of piastres were issued in the month of February 1781; in short, the following year others were issued in bills of 300 piastres each, to the amount of 221,998,500 rials (2,500,000*l.*). Its whole debt of this description then amounted to 431,998,500 rials (about 5,000,000*l.* sterling), without reckoning obligations of a less apparent nature, which raised it to near 800,000,000 of rials (9,000,000*l.* sterling).

At the time the first bills were issued, Charles III. engaged to withdraw a part of them annually from circulation. But as at the beginning of the war he had been obliged to overburthen his people by an augmentation of a tax on some of the principal necessities of life; at the return of peace, he preferred alleviating this burthen, to keeping his engagement with the creditors of the state; and it was not before the month of June 1785, that bills to the amount of 1,200,000 piastres were withdrawn.

A few weeks afterwards, to the astonishment of the public, other paper was issued, to the amount of 48,000,000 of rials; these last bills, it is true, had for object the continuation of the canal of Arragon, the profits of which were to serve as security, so that this could not be considered as a charge to the state.

In the mean time, the alarm which the real paper-money had excited was dissipated by degrees. The royal notes were taken at par, and at the close of 1786 they began to be sought after, and even bore a premium.

The war which took place in 1793 made fresh emissions necessary; yet the *vales* were at the most critical period at no greater discount than 25 to 30 per cent.; which, as this kind of paper is destitute of any special security, if the precarious guarantee of a despotic government be excepted, is rather a matter of surprize. Towards the middle of 1796, these notes upon the frontiers were at a discount of 10 to 12 per cent., while in the capital they were at no more than 6 to 8 per cent. loss. At a later period, when a rupture with England was apprehended, they fell to 18 per cent. discount; and it was foreseen that in case of its taking place, the loss upon them would be unlimited*. The amount in circulation at that time was 1490 millions of rials (17,000,000*l.* sterling); and far from lessening the amount, a loan took place in 1796 for 240 millions more, at 5 per cent.

What a lesson for governments, whether monarchical or republican! A suspension of various useful enterprizes, a spoliation of part of three of her provinces, the death of from forty to fifty thousand of her subjects, the loss of a valuable colony, which however did not in truth attain prosperity under her government, an increase of taxes and debt; these were the fruits which Spain reaped from a transitory abandonment of its real interests, in striving to avenge the death of a king, and the violation of its holy religion. At the instant of war being resolved upon, (I was witness to the general enthusiasm,) the whole nation, with the exception of a few enlightened individuals, participated the indignation of the court. Religious communities, grandees, rich proprietors, all made it a duty to second its every effort. But the events of the war, almost wholly unfortunate, the obstinacy with which we defended a cause that the Spaniards at first considered so odious, the necessity of rest after such violent agitations, the tardy convic-

* In effect, they fell 15 per cent. discount in 1801. But after the signing of preliminaries with England they rose rapidly. As early as 1802, they were but at 20 per cent. discount; and in the month of April, they were at Amsterdam at only 15 per cent. loss. The arrival of the treasure so long expected from America may possibly raise them to par.

tion of the slight interest which Spain had in weakening a neighbouring state, its natural ally; these collective circumstances abated its pristine warmth. Indifference with respect to the war at first, and successively impatience brought about peace; and never was peace more looked for, nor received with greater transport than that, the basis of which I was charged with establishing at Figuières; and which was definitively signed at Basle the 22d of July 1795, between the French republic and the King of Spain.

It was then hoped that the court of Madrid would employ its leisure and the savings of peace in repairing the breaches effected in its finance by a war, to lay the best of it, useless and without object. But shortly afterwards a second rupture suspended the return of its external resources, and delayed the period of its employing the means of restoration. Government has, however, effected the discovery of them within the kingdom, even in midst of the calamities of war.

Spain contains an immense quantity of funded property, known by the name of *Memorias y Cofradías*. The first consists in foundations made in favour of different churches, under the obligation of saying mass for the soul of the testator. The *Cofradías* are bequests of religious persons, consecrated to the particular service of the images of the Virgin Mary and various saints. For too long a time had the destination of these different properties made them be considered as sacred. Under a less enlightened, and less courageous government, never would a minister have dared to touch them; and if the Spanish nation were so generally or so blindly superstitious as it is esteemed to be, they could not have been touched with impunity. This measure has, however, been taken, and happy has been the result since its adoption in November 1800.

The soil, palsied through the piety of the faithful, inalienable like other ecclesiastical property, was badly managed and worse tilled. Government exposed lands of this description to sale, for the purpose of successively cancelling the royal notes. In the early part of 1802 these sales had already produced ten millions of piastres (1,250,000l. sterling).

Spain has reaped advantage from this measure in every shape, in spite of scruples, purchasers flocked in abundance. In the hands of their new proprietors these lands double their former crops. Thus has government made a long stride towards the amelioration of agriculture, and the increase of population. A few such additional efforts of courage will tend to rescue the country from that prejudicial languor, more hurtful perhaps to its interest than bad administration itself.

But in Spain perhaps more than in any other country, boldness must be tempered with caution. Innovations are there disliked: it is a country which clings to ancient prejudices; and this propensity has hitherto prevented the adoption of certain useful measures which, while they would have benefited the revenue, would not have been oppressive to the people. In the reign of Charles III. government had it more than once in agitation to appropriate to itself the property of the four military orders, which would have produced much more in the hands of the sovereign than under its present bad management, and besides bringing an increase of revenue, would have furnished the means of compensating by pensions the commanderies annexed to these orders. But the scruples of the monarch prevented the adoption of the project.

Another equally reasonable would be a general tax upon all the lands in the kingdom, not excepting those of the nobility and clergy. But this project, against which those two powerful bodies would certainly exclaim, and whose intrigues would present obstacles which the Spanish government might find it difficult to overcome, without calling in a dangerous support, will perhaps oblige Spain to await, in the slow resources

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of oeconomy, the advantages she might propose to herself from a sudden but dangerous change.

Under Charles III. the government, far from being alarmed at the treatment her returning credit first met with, did not defer a second attempt, intended to give to her paper an advantageous circulation, to awaken the Spaniards from their lethargy, draw from their chests the money there lying useless, both to themselves and the state, and throw it into circulation to the advantage of commerce and industry. Such were her great objects in establishing in 1781 a national bank, which has scarcely any thing in common, except its name, with the banks of other states in Europe.

CHAP. III.—*Bank of St. Charles.—Notes.—Coin.*

THE idea of a national bank was given by a French banker, M. Cabarrus, established at Madrid, who began to insinuate himself into the favour of government at the time the first bills were issued. M. Cabarrus had a vigorous and firm mind, with talents cultivated in secret to the period which brought him into notice. The favour of the minister would not have sufficed to enable him to combat with success the numerous obstacles he had to encounter. Embarked in a project, in which a thousand prejudices concurred to prevent his succeeding, he has at once acquired great honour, and an immense fortune, diminished no doubt by the persecutions he has since undergone. Nothing but partiality can attribute to chance alone such brilliant and continued success. M. Cabarrus has had very ardent friends and bitter enemies. This is not the lot of common men.

In 1781, after having profoundly meditated on the resources of Spain too long unproductive, the causes by which they had been obstructed, and the means of giving them activity, he digested the plan of a national bank.

Its principal object was to give employment to a large sum of money, which was either unemployed, or placed at a very moderate interest. The first means he proposed was to establish a capital, which would discount, at four per cent. per annum, all bills of exchange drawn upon Madrid. This expedient was trifling; Madrid is not properly a commercial city. The wool Spain sends abroad is the principal article paid for in that metropolis, and this alone would not have furnished any very fruitful employment for the capital of the new bank.

The profits of the *realgiro* were superadded, a particular species of bank, from which the court takes the money it has occasion to send abroad, either for the payment of ambassadors, envoys, consuls, &c. or for other purposes. This still was but a weak assistance, no more than two or three millions of livres annually passing through this bank.

But the chief source of profits which M. Cabarrus proposed to open to the national bank was the victualling and furnishing of the navy and army. Contracts for the first had heretofore been given to different persons. The second was held by the *Gremios*, and the several leases and contracts with these and the government were upon the point of expiring. The bank might therefore soon obtain possession of their privileges.

Government was easily induced to favour a plan, which went to distribute among a great number of citizens those profits hitherto confined to a few. The capital of the proposed bank amounted to the sum of 300,000,000 of rials (3,400,000 l. sterling), divided into 150,000 shares, 2,000 rials each. No one who had property to purchase shares was excluded from the profits they might produce, and these, according to the prospectus, were very promising. Besides idle money to which a deposit was afforded
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that yielded a benefit, it was hoped that a great part of that in the hands of the Gremios, at a moderate interest, would be removed from their coffers to those of the national bank. The surplus of the levies of cities and communities were also counted upon. These were in the administration of the council of Castile, whence the national bank was to take, and place them for the advantage of the persons concerned. In Spain there are magazines of grain in most of the cities, boroughs, and villages. Their surplus is converted into money. This was also an unfruitful capital, which the bank might make productive.

The project appeared to promise great advantage to every class of citizens. It is not therefore astonishing that it should have been adopted by the administration.

It was discussed in 1781, in an assembly composed of members from the chief branches of government, and who came to a determination that the national bank, or bank of St. Charles, should be charged with victualling and cloathing the army, and furnishing the navy with the articles above-mentioned, that it should be allowed an interest of *four per cent.* on account of the advances made to government, and a commission of *ten per cent.*

The prospect held out was apparently seductive; however, the greater part of the people were unmoved by it. Few withdrew their money from the bank of the Gremios; who were only obliged to raise the interest they paid to three and a half per cent. The new establishment had some partizans, but these appeared suspicious. Its antagonists, armed with the pretence of public good, forcibly declaimed against it; they kept up a mistrust for which anterior events had laid a foundation, and gained many over to their opinion.

The enemies to the new bank were, in the first place, all those who are equally so to every novelty; others whose calculations were deranged by it, and those especially who from jealousy or national prejudice looked with an evil eye upon a foreigner, supported by the ministry; who, said they, takes advantage of a transient credit to overturn a nation which might find among its own citizens men who understand its interests much better. The parallel already drawn between the creation of paper credit and the system of the famous Law was then recollected.

The project in France was that of an ambitious stranger, who had given a mortal blow to the credit of the kingdom, by endeavouring to render it flourishing. In Spain it was that of a stranger also, who pretended to animate public credit and commerce, and aspired to seduce the nation, by tempting it with a chimerical profit. Each had finished the plan of a bank; therefore the resemblance was perfect. Thus judge the greater part of men. Malevolence pretended, and echoed upon by credulity and ignorance, that the bank of St. Charles presented to the public a plan of operation illusive in its nature, and totally incompatible with the true interests of the nation; and which instead of favouring the liberty of commerce, must be prejudicial to that, as well as to agriculture and industry; that it naturalized an evil until then unknown in Spain, a class of useless annuitants who should live in opulence and idleness on the labours of their fellow-citizens; and that after having held up to public hatred all exclusive privileges, it carried on itself the most odious of monopolies.

What furnished a pretext for the last accusation, was a grant which the bank of St. Charles obtained soon after its establishment, for the exclusive exportation of piastres. This money it is well known is employed to pay the balance of accounts due from Spain to the other nations of Europe.

The exportation of piastres for this purpose cannot be dispensed with. In less enlightened times the Spanish ministry conceived the idea of turning it to advantage:

to increase the revenue of the state, such exportation was subjected to a duty of three per cent. which, in 1768, was augmented to four, and although the ministers are now convinced that it is only an additional tax on their own traders, to whom foreigners sell their goods four per cent. dearer, the state of Spanish finances, and, perhaps, the remains of an attachment to old prejudices, have not yet permitted them to take it off.

The consequence is, that the duty being sufficiently high to give temptation to smuggling, it is eluded in every shape, and although a sufficient quantity be exported to cover the balance the royal treasure is deprived of a part of its duties thereupon.

To remedy this inconvenience, the bank wished for the exclusive privilege of exporting all the piastres necessary to discharge the balance due from Spain, and represented, that the grant would prevent the value of money from being increased, which must be the necessary consequence of multiplied negotiations; and diminishing the fraudulent exportation of piastres, by an extraordinary vigilance, such as could not be expected from the agents of government.

Its wish was granted and it was ordered, that to prevent the piastres from being fraudulently withdrawn out of the country, they should all pass by the way of Bayonne, and that those who should have money to send into foreign countries, should be obliged to take bills from the bank.

In spite of numerous exclamations proceeding chiefly from private interest, the bank of St. Charles was put in possession of its privilege in the month of November 1783. The first use made of it proved very advantageous to the subscribers. The return of peace brought with it a prodigious quantity of piastres. The bank exported upwards of twenty millions in 1784, and the year following nearly twenty-two millions. The revenue itself gained by the new arrangement. The most advantageous preceding years had not produced six millions and a half of rials; it received from it in 1784 upwards of fifteen millions, and from sixteen to seventeen millions in 1785. The bandage then fell from the eyes of ignorance; malevolence was dumb, and the bank triumphed. The single article of piastres afforded twelve millions of rials as a dividend to the stock-holders.

In the mean time the expiration of the contracts with government for the victualing of the army and navy had put the bank in possession of these principal sources of its revenue. Its dividends were consequently enlarged by it. That of 1784, the first it made, was nine and a half per cent.

The triumph of the bank was then complete, and as men in all countries ever pass from one extreme to another, invective was soon changed into enthusiastic panegyric. The bank took advantage of this revolution, to increase, at different times, the shares which it had yet to dispose of, and thus enabled itself to increase future dividends. The fermentation reached foreign kingdoms, which were then much addicted to stock-jobbing. In a little time the shares of the bank rose in France, Geneva, and other places to 3040 rials; and the Spaniards, having less faith or more foresight than foreigners, encouraged this inconsiderate ardor.

It was, however, but momentary, although it lasted long enough to produce pernicious revolutions in several fortunes. Some persons took upon them to oppose the predilection it had excited. *Mirabeau* particularly, *that insurgent of public opinion*, as he called himself, with an energy too natural to him, attacked the bank of St. Charles. He even wrote a thick volume against it, in which he was prodigal of his malediction, predicted the most baneful consequences to its proprietors, and loaded its author with innocent invectives. He affirmed, that great commercial nations had reason to fear lest their subjects, who had great capitals, should embark too much of their property in the bank of St. Charles, as they had need of all their aid to lighten the burden of their own debts; and

and that individuals who exposed their fortunes in so hazardous an enterprize, acted like bad citizens as members of society, and like madmen as fathers of families.

The court of Madrid, in June 1785, proscribed the publication, but this proscription did not prevent the work from having effect. The enthusiasm of French stock-jobbers abated, and never after revived. A great part of the shares of the bank, originally sold to foreign countries, have returned to Spain. The directors of the establishment redeemed thirty thousand shares in 1787 and 1788, so that at present there are no more than one hundred and twenty thousand in circulation.

Four years after its foundation M. Cabarrus projected a new source of profit by connecting it with the Philippine Company, of which he had just laid the first stone. He induced the stockholders in 1785, to add to the funds of the company the sum of twenty-one millions of rials, deducted from the dividend of 1784. Whatever may be the issue of this new institution, this partnership cannot at any rate be prejudicial to the funds of the bank.

The epoch of the infatuation which it caused is gone by, probably never to return, that of its aspersions should also be passed, the public opinion with respect to it appearing now to be settled. It is clear, in spite of the authority of Mirabeau, that without ceasing to be a *good citizen* or a *good father of a family* a man may buy stock in the bank of St. Charles; since it may be considered as firmly established, having overcome the storms which threatened it in its cradle.

Since 1785 almost all its meetings have been tumultuous. Lerena, who at that epoch became minister, began his career by manifesting his antipathy against its institutor; he intrigued against its former managers, and displaced them in a scandalous manner, substituting their enemies instead of them. He took away from the bank their commission for victualling the army and navy, which, according to treaty, they possessed a right to three years farther, and the profits of which might have repaired the losses arising from misfortunes of previous years; and gave the management of it to the *Gremios*, who had long impatiently waited for revenge. So many proofs of malevolence discredited the shares to such a degree, that towards the end of 1791 they scarcely sold for 1800 rials, dividends included.

The animosity of Lerena did not end here. Jealous of the credit and success of M. Cabarrus, whom he looked upon as a dangerous rival, and irritated by the incautious language which the latter allowed himself when speaking of him, he obliged him by his vexatious conduct to resign his situation in 1790, as perpetual director of the bank. Shortly after, having intercepted a letter of insignificant consequence, which he had addressed to one of his correspondents, he made it a pretext for arresting him. His detention lasted more than five years, and Lerena, as capable of nourishing as he was calculated to excite hatred, carried with him to the tomb the satisfaction of leaving his victim in prison. His successor M. Gardoqui had an injury left him to repair. Whether for want of credit, whether owing to the tardiness, which however left room for disagreeable interpretations, he was not ready in fulfilling this duty. The case of M. Cabarrus underwent those dilatory forms which are but too common in Spain, and which secret malevolence possesses many means to procrastinate. At length, in the course of 1795, he obtained a late but brilliant retribution. He was absolved from all the charges against him, reinstated in all his appointments, and authorized to prosecute the heirs of his persecutor for the damage which his fortune had suffered from his long detention.

Since 1796 M. Cabarrus has undergone great vicissitudes. He was honoured with the title of Count; resumed almost all his pristine influence over the bank of St. Charles, which was his offspring. In a meeting where he was present, it was engaged that all

animosities and prosecutions should cease. By intimacy with the Prince of the Peace he recovered a part of his credit, and this supreme minister condescended in measure to take counsel of him in the nomination of two persons to the ministry, who were more indebted to public opinion than favour.

The Count de Cabarrus was afterwards entrusted with some external missions of consequence. On his return to Spain, his enemies had given out that certain connections he had at Paris rendered him a proper person to be employed in the principal embassy which Spain was then about to fill.

He was consequently appointed ambassador to France. When on his way to occupy this new character, it was remarked to the executive directory, that being born a Frenchman, he could not represent a foreign power in his own country; and his appointment was not accepted.

This was an affront to him; it was made the subject of blame: from that period his credit declined, which was succeeded by a species of disgrace. After travelling for some time, returning to Spain, he found that his enemies had taken advantage of his absence. He soon saw that a philosophical retreat was what befitted best his situation, and in consequence retired to an estate some leagues distant from Madrid, where he has given himself up to agriculture and establishments of industry.—But let us return to the bank of St. Charles.

Fifteen years after its foundation, it was in a far different condition to what it was at its beginning. It was to have been entirely independant of the government: it is totally under its controul. The court has appointed a *conservatory judge*, and has the greatest influence in the nomination of its directors. During the war with France its shares scarcely produced 1500 rials, although if one of the late years be excepted, it has constantly distributed a dividend of 6s. 5½d., 5, or at least 4½ per cent.; a circumstance scarcely credible, if the diminution of its sources of profit be taken into consideration. It discounts but few bills of exchange, its external payments on account of government may be looked upon as next to nothing, the provisioning of the army and navy has been taken away from it entirely, and little remains by which any considerable profits can accrue to it beyond the exportation of piastres.

Such is the bank of St. Charles, so much more famous than it has deserved to be. It has neither justified the pompous promises of its founders, nor the sinister predictions of its enemies. But it must be allowed that all things considered, it has produced more advantage than inconvenience. It has electrified many heads which seemed destined to stupidity. It has developed and put in activity talents which were not suspected; and has thrown into circulation much treasure which laid idle and unemployed.

This naturally leads to our saying a few words on the circulating medium, and coins of Spain.

It is not easy to ascertain exactly the amount of the currency in Spain. It has, within its dominions, mines which produce all the metals of which its coins are made. Stamped coins do not leave America without paying an impost; a second is paid upon their importation into Spain, and a third upon their export thence to foreign countries. It should seem from this, that by attention to the custom-house receipts it were easy to ascertain the existing circulation within the country. But of this money manufactured in the Spanish colonies, a great part is smuggled direct to different parts of Europe: another is carried away in a clandestine manner, for payment of foreign merchandize, before it touches a Spanish port, and lastly, as re-coinage is not common in Spain, sufficient data are wanting to determine the amount in the country with any nicety.

A short time before his death, Musquiez, who had been employed in the finance department either as head clerk or minister for twenty years, had not even a *guess* as to the amount. He acknowledged this in my presence before some Spaniards more enlightened than himself, and it was in consequence of the discussion which took place on this occasion that I obtained information that the currency amounted to about *eighty millions of hard dollars*. Spain was at that time engaged in an expensive war, and had not then made the ruinous attack on Gibraltar. She has since been effecting, or preparing certain military operations, the consequence of which has been an extraction of capital without the country, which has not entered it again. In the war (notwithstanding its extreme shortness) which she waged with France, she has experienced losses which are not repaired for years, and in the succeeding one with England, all her means of prosperity being suspended, she cannot fail of having become still more embarrassed. Thus, although her commerce has been more extensive since 1782, and the produce of her mines be greater than before, her effective money may yet be deemed no greater than at that period. Perhaps it may appear surprising, that Spain, in possession of almost all the mines of silver, and a great proportion of the gold mines, should be reduced to so trifling a currency, particularly when one recollects, that at the time of Charles V. she was in possession of almost all the gold and silver in Europe, and (what is of infinitely more value) of the means of existing without intercourse with other states; from the fertility of the soil, and her abundant employment for the industry of the nation.

How is it that, in less than a century, this kingdom has fallen from this state of splendor? To what is so rapid and complete a revolution to be attributed?

To many causes, and firstly, to the abundance of its precious metals which have increased the price of commodities, and the wages of workmen.

To the decline of its manufacturers, which was the consequence; to its depopulation, caused by the numerous emigrations to America; and the expulsion of the Moors and Jews.

It may also be more particularly attributed to the ruinous wars undertaken by Philip II. against the low countries, and which from the year 1567, to the truce in 1612, cost upwards of two hundred millions of piastres.

But let Spain enjoy some years of peace, let her government second the venerable disposition of modern Spaniards for all useful enterprizes, she will then no longer see the greater part of her circulation withdrawn to pay her balances to foreign industry, and receive in other countries of Europe the stamp of other sovereigns.

The first coin, as well gold as silver, which was struck in Spanish America, was clumsy in its shape as well as its impression, which on one side was a cross, and on the other the arms of Spain. Some of it is still in circulation.

The impression varied until the year 1772, when a new coinage took place, in which the head of the sovereign was struck on one side, and on the other the arms of Spain on an escutcheon..

We are now about to give an exact prospectus of the different kinds of gold and silver coin stamped in Europe and America.

Ancient Coins no longer struck in the dominions of the King of Spain, but which are current.

GOLD COINS.		Their value.	
The piece of 4 pistoles, unmilled, <i>onza cortada</i>	-	321	rials 6 marav.
$\frac{1}{2}$ piece ditto, <i>medea onza cortada</i>	-	160	20
golden unmilled pistole	-	80	10
$\frac{1}{2}$ golden unmilled pistole	-	40	5

This

This is the value of each of these pieces in general, but as their shape renders them susceptible of becoming worn without its appearing, they are only taken according to weight. They cannot therefore be precisely valued in French money, nor can the exact quantity of pure gold which they contain be noted.

There are as well gold coins of each of these denominations, which although milled are yet weighed upon their being taken. They are distinguished by having a cross on them in lieu of the King's image.

Gold milled coins no longer issued since 1772.

Names of the Coin.	Value.	English Value. Exchange at 40d.		
		£.	s.	d.
The 4 pistole piece milled, coined before 1772,	321 rials 6 mar.	3	6	10 $\frac{1}{2}$
The $\frac{1}{2}$ piece of 4 pistoles, ditto	160 20	1	13	5 $\frac{1}{4}$
The pistole, do.	80 10	0	16	8 $\frac{1}{2}$
$\frac{1}{2}$ pistole, do.	40 5	0	8	4 $\frac{1}{4}$

Silver coin no longer struck.

The old unmilled piafre,	20 rials	} These four pieces are in the same predicament as the 4 gold un- milled pieces.
$\frac{1}{2}$ Ditto do.	10	
old pezetta	5	
$\frac{1}{2}$ do. do.	2 17 mar.	
The old milled piafre with two globes on it crowned, of the same value as the other, and the new coin,	20 rials	
The $\frac{1}{2}$ do.	10	

Coins of the new stamp.—Gold Coin.

Names of the Coin.	Value.	Value in sterling. Money. Exchange at 40d.		
		£.	s.	d.
The Quadruple, called in Spain <i>doblon de aocho</i> , and vulgarly <i>medulla</i> ,	320 rials	3	6	8
$\frac{1}{2}$ Quadruple or <i>media onza</i> ,	160	1	13	4
El doblon de oro, or golden pistole	80	0	16	8
El medio doblon de oro,	40	0	8	4
The ducat, <i>reinten</i> , called vulgarly <i>du ito</i>	21 8 mar.	0	4	5

Silver Coin.

Names of the Coin.	Value.	Value in sterling. Ex. at 40d. per piafre.		
		£.	s.	d.
The hard dollar <i>peso duro</i> ,	20 rials	0	4	2
$\frac{1}{2}$ dollar <i>medio peso duro</i> ,	10	0	2	1
<i>La pezeta columnaria</i>	5	0	1	0 $\frac{1}{2}$
<i>La media pezeta columnaria</i> , or <i>bit</i>	2	0	0	5
<i>El realito columnario</i> , or quarter, <i>pezeta</i> <i>columnaria</i> ,	1 8 $\frac{1}{2}$ mar.	0	0	3 $\frac{1}{2}$

Note, these three latter pieces are only struck in America. They are milled, and bear on one side the arms of Spain, on the other two globes surmounted with a crown and placed between two columns.

La pezeta

Names of the Coin.	Value.	Value in sterling.		
		Ex. at 40d. per piastre.		
		£.	s.	d.
La pezeta	4 rials	0	0	10
La media pezeta, or rial de la Plata	3 do.	0	0	5
El realito, or rial de billon	34 marav.	0	0	2½
COPPER MONEY.				
The piece of two quartos	8½ marav.	0	0	0 11 0
— quarto	4¼	0	0	0 11 0
— octavo	2¼	0	0	0 11 0
— maravedi	1	0	0	0 11 0

The greater part of the gold coins are struck in America. Few proceed from the mint at Seville.

Those of silver which are stamped in Spanish America have for distinction on one side the Spanish arms between two pillars, and on the other, a garland of laurels round the effigies of the sovereign, as if to denote that the Kings of Spain are the conquerors of America.

Those struck in the European mints only bear the shield without pillars, and the likeness of the King without a garland.

There are many mints in Peru. The best known is that of *Potosi*. There is one at *Santa Fé de Bogota*, one at *St. Jago de Chili*, and one in *Mexico*. From the latter is issued the greater part of the dollars which are current in Europe.

Each mint has its distinguishing mark; that of Mexico has a capital M surmounted with an *o*.

There are but three in Spain; those of Madrid, of Seville, and of Segovia. The distinction of the first is a capital M crowned, that of the second an S, and that of the third a little aqueduct of three stories; but for many years the mint of Segovia issues none but copper coin.

There is besides ideal money in Spain, some of which are monies of exchange: these are,

The *simple pistole*, or doubloon, worth four common piastres, and, at 40d. the piastre, 13s. 4d.

The *peso*, called also *peso sencillo*, to distinguish it from the *peso fuerte*, worth 3s. 4½d.

The *juco de vellon*, an ideal money employed in computing the revenues of the crown; it is worth ten rials, or half a hard dollar, 2s. 1d.

The *ducat*, another imaginary money which serves for reckoning the revenues of individuals, and worth eleven rials, or 2s. 3½d.

We shall say nothing of certain other ideal monies peculiar to different provinces, such as *la libra* of Valencia, Catalonia, &c.

Spain has been tolerably constant in her abstinence from changing the standard of money, convinced that the slightest variations, the least mistrust on this head, would have a dangerous effect on operations of commerce in general, which draws from the Spanish possessions the greatest part of the metals it employs. Nevertheless in 1737, the court of Madrid, having observed that the great piastre had only a value proportioned to the difference which then existed between the gold and silver coin, increased it to twenty rials. The equilibrium intended to be established between these two metals was again destroyed, the value of gold being no longer in proportion to its abundance. There was too great an advantage in exporting it in preference to silver; so that if Spain had not applied a remedy, she would in the end have been wholly deprived of that metal. Government, therefore, thought proper in 1779 to add a sixteenth part to the former nominal value

value of the gold coin, without changing the weight or standard. By this operation, the *quadruple*, or *doblon de ocho*, which before was worth but fifteen great piastres, was increased to sixteen, and all the other gold pieces in proportion. The nations which possess precious metals give laws to the rest with respect to the standard of their money; and those who do not follow them must sooner or later be the victims of their obstinacy. This just observation, constantly confirmed by experience determined our ministry shortly after to increase the value of gold coin without altering its denomination.

There is in Spain a sovereign court which regulates and decides affairs relative to coin, under the title of *real junta de comercio, moneda, minas, &c.* it is composed of one member of the council of Castile, two of that of the Indies, and some of the members of the council of finance; and is as independent in its circle as the other sovereign councils of the monarchy.

CHAP. IV.—*Council of war, and its attributes.—Military rank.—Of the Duke de Crillon.—Infantry.—Method of recruiting.—Quintas.—Militia.—Cavalry.—Scarcity of good horses.—Artillery.—Engineers.—Military education.—Of Count O'Reilly.—Military rewards.*

THE council of war is at the same time a tribunal and a permanent board of military administration; the King commonly consults it on issuing orders relating to his troops. Until the reign of Philip V. this council appointed the superior military officers. But the Bourbon family, laying aside by degrees every impediment that hindered the exercise of power, assumed this prerogative of the council of war. The King names to all military employments, upon the presentation of the inspector of each army. The inspectors adopt military measures on many occasions without the interposition of the council of war; but, for the sake of form, such as are taken without its concurrence receive its sanction. Thus it was, that our parliaments registered generally without demur the edicts of the King. Sometimes indeed they pretended a shadow of opposition to his will. But even this feeble restraint to arbitrary power is beyond the force of the council of Spain. Despotism there is neither irritated nor provoked to excess by any lawful obstacle. There is no rallying point against it. If it be but moderate, in spite of predictions, it may yet endure for a length of time.

The chief functions of the council of war are, to administer justice to those who are in a military capacity, and bring their causes before that tribunal. It is divided into two chambers, or *salas*, the *sala de gobierno*, and the *sala de justicia*. The former is especially employed in matters of administration. It has for counsellors the inspectors, who are the most ancient captains of the body guards, and the oldest of the two colonels of the guards.

The *sala de justicia* is confined to litigations. If parties are dissatisfied with its decision, they may require the other chamber to be joined to it to examine the cause anew.

According to treaty, the causes of strangers are carried by appeal to the council of war; and foreign nations who have intercourse and connexions with Spain, particularly the French, derive great advantages from this tribunal, the equity of which is rarely prevented by national prejudices; without being more accessible than the others to the solicitations of favour or corruption, it appears to be much more open to reason. In my frequent transactions with it I have had great room to admire its wisdom and justice; and could wish, that, for the interest of our commerce, the citizens of France may always preserve its members for supreme judges.

The highest military rank in Spain is that of *Captain-general*; which is equal to that of Marshal of France, and not incompatible with it; since these honours were united in the person of Marshal Berwick. This preferment is not easily obtained in Spain; it was confined in 1785 to two persons in the army, the Count de Aranda and the Duke de Crillon. At the end of 1795 there were ten, three of which had been recently created; this number was shortly after reduced to nine *, by the death of the conqueror of Mahon. His posterity is now in existence. What will it say of him? His family will long speak of the qualities of his heart, his friends of those amiable points which caused his society to be courted, and excused the trifling follies naturally consequent on a lively temper and an easy character. As for history, it will say, Crillon merited the title which for ages has been an appendage to his name, he was a brave man not on *such a day* alone but constantly. He had had a long experience, but less possibly of the military art than of the dangers of war. He was active and indefatigable. By his humane disposition, by his engaging and familiar manners he conciliated the minds of the soldiery. His example recommended to them, at the same time, both true courage and gaiety. He was brilliantly fortunate in having, like the Cardinal de Richelieu, effected the capture of a fortress that had been deemed impregnable, although he failed before another which experience has stamped with that character. If he was the sport of the passions of his satellites, and perhaps of his own, he yet, at least, displayed that energetic constancy, that pertinacity, which levels and overcomes all obstacles. In the military memoirs which he has left behind him, without being aware of it, he has faithfully delineated his own character; in them precept is supported by example, his frank honesty is distinguishable, his undisguised benignity, and even the pleasing disorder of his fancy.

Next to the captains-general, rank, as in France, the lieutenants-general, field marshals, and brigadiers; three classes of general officers which the war with France caused the number of to be greatly augmented.

In 1788 Spain had forty-seven lieutenants-general. In 1796 as many as one hundred and thirty-two. At present there are no more than eighty-one. The number of field-m Marshals in 1788 was sixty-seven; in 1796, one hundred and sixty. At present there are one hundred and twenty-six.

In 1788 the Spanish infantry consisted of forty-four regiments of two battalions each, without including the Spanish and Walloon guards, each containing four thousand two hundred men, in six battalions. Of these forty-four regiments thirty-five were Spanish, two Italian, three Flemish, and four Swiss.

One of the Italian regiments has been disbanded, so that there now remains only the Neapolitan regiment.

The three Flemish regiments, called the Little Walloons, (Flanders, Brussels, and Brabant,) have been incorporated into the national regiments.

The Swiss regiments have been increased from four to six.

The national regiments have been augmented by fourteen new ones, two of which, the volunteers of Terragona and of Girona, were created in 1792, and the twelve others during and since the war with France.

The eighty-eight battalions in 1788, at six hundred and eighty-four men each, would have made the infantry amount to 60,192. However I frequently heard it repeated, during my first residence in Spain, that there were scarcely 30,000 in actual service.

* At the end of 1801 only seven remained, including the brother-in-law of the Prince of the Peace, the Marquis de Branciforte, but exclusive of him made superior, even to the Captain-general, through the favour of the King, under the title of Generalissimo of the Army.

The last war demonstrated, that it was capable of greatly increasing even the former number.

A short time previous to the declaration of war, a new form was given to the Spanish infantry. Each regiment was composed of three battalions, two of which took the field, and one remained *in garrison*, serving as a *dépôt* for furnishing recruits, and deficiencies arising in the two others. The two first should have each five companies of 177 men each, one of which grenadiers, and another chasseurs. Their complement in peace was 700, and in war 800 men each. On my arrival in Spain in 1792, this new regulation had been recently sketched out, and only one regiment, at that time, had a third battalion. The greater part of these regiments at the beginning of the war were composed of scarcely 1000 or 1100 men. In a great number, the first battalion could not be carried to its complement of 800 men, without disfurnishing the ranks of the other two. The battalions sent to the frontiers comprized four companies of musqueteers of 160 men each, and one of grenadiers of 120, total 760.

Each company in the Spanish regiments had a captain, with the peace appointment of 700 rials per month; a first lieutenant with 400, a second lieutenant with 320, and an ensign with 250 rials per month. There were two ensigns in the foreign regiments.

Each soldier received 11 quartos per diem, (about 3½d.) out of which two were retained for linen and shoes, seven for their meals, and two for other necessaries. They were new clothed every thirty months, and every fifteen months a new pair of shoes, two pair of stockings, and two shirts were delivered them.

It is easily perceivable, that in war these allowances must necessarily be greater.

If the two first battalions of the forty-four regiments had been complete, Spain would have had an army of 70,000 men; but they were very far from being so in 1792. At the beginning of the war, and even before, every method that could be thought of for filling up the different complements was adopted, and twelve additional regiments were formed. If then we add to the first mentioned 70,000 men the strength of the twelve new regiments of 9,200, the 30,000 militia, and the 8400 of Walloon guards, Spain will have had in arms 127,600 infantry. But as well as that the greater part of these regiments could not be filled up to the war complement, a considerable deduction is necessary for the garrison of Madrid, and to guard different places in the interior: so that the greatest army Spain at any time had in the field could not have exceeded 80,000 infantry, not including, however, in this number 20,000 peasants which were armed, and incorporated for the service of the campaign of 1795.

It is not long since a part of this infantry was abroad. In 1782 thirty-six battalions were in America. Since that time permanent corps have been established there, and at the close of 1792 there were scarcely any battalions out of Europe. I say nothing of the places which Spain possesses on the coast of Africa, *Couta*, *Mili la*, *El Penon*, and *Al-bucemas*; these places, known under the name of *African Prefidencies*, form a distinct government, and are maintained by troops belonging to the European army.

The means of recruiting this army are very confined. The Spanish nation, brave as it is, has for some time had a dislike to the foot service. Each regiment finds a difficulty in procuring men; the colours are raised in places in which it is supposed most dupes and libertines are assembled, and thus, as in France, the regiments are formed by the disorders of society. The soldiers of our regiments, impelled by their inconstancy to pass the frontiers, used to take advantage of the gorges of the Pyrenees to desert and engage themselves to Spanish recruiters. Foreign regiments in the service of Spain were recruited at the expence of ours; and as the Spaniards are void of that restlessness which characterises their neighbours, and induces them to wander to every part
of

of the globe; and besides the French army being much more considerable than that of Spain, all the inconvenience of the proximity of the respective garrisons was on the side of the French; hence the court of Madrid has been solicited in vain to establish a cartel for reciprocally giving up deserters; all that it would listen to was, that each should restore the arms, horses and baggage of deserters.

It is true there is a second method of recruiting the army called the *quintas*, which resembles the drawing for the militia, but which in Spain is perfectly distinct, both having existence, the one for filling up the companies of the regular troops, the other for the provincial regiments. The ordinance of 1705 enacts, that for the first, lots shall be drawn in each village for one person in five; but then the drawing of the militia shall be suspended. This undoubtedly is the etymology of the word *quintas*. As it always happens, the thing is changed and the word remains. The *quintas* do not at present require so great a number; and as the people have on some recent occasions shewn how odious it was to them, government has recourse to this expedient only in the last extremity. She refrained from enforcing it in the American war, but had recourse to it twice in that with France.

Besides these regiments of infantry Spain has forty-two of militia, distributed in the provinces of the crown of Castile. They are assembled only during one month in the year, in the principal place of which they bear the name; and for that time the officers and soldiers receive pay. It were needless to state that they are paid also in time of war, when they replace the regular troops in garrisons, or join the army, of which they certainly do not form the least valuable part: this was sufficiently evinced in the war with France, when eighty-four companies of grenadiers and light infantry, comprizing 6,300 of their number, were marched to the frontiers. In time of peace, excepting their month of assembling, they remain in their villages and follow their respective occupations. These regiments all consist of one single battalion of 720 men, except that of Majorca which has two, and must always be complete. As soon as a soldier of the militia dies, deserts, or is discharged, lots are drawn in the village whence he was taken, to replace him.

These regiments of militia have a particular inspector. Their colonels are chosen from among the most distinguished gentry of the district; and their authority is very extensive over the men. They have the power of inflicting punishments, and there is no appeal from their sentences but to the King, through the medium of the council of war. Few states in Europe have a better regulated body of militia; or which more deservedly sustains the reputation of valour, ascribed to the nation.

The Spanish soldiers have long been justly renowned throughout Europe for their cool and persevering courage, and the resolution with which they support labour, fatigue, and hunger. Those of our countrymen who saw them at Minorca and before Gibraltar, do them complete justice on that head, and those who in the last war took revenge on them for their transitory successes in the Roussillon, and on the banks of the Bidassoa, sufficiently well understand the interest of their glory, to allow that, on most occasions, they met in the Spaniards with enemies worthy of their courage.

Even the officers, respecting whom while I was in Spain I heard the most severe remarks, in the course of this war have constantly manifested both courage and talents. And here let us observe, that if the Spaniards have in any way degenerated, it is to be imputed to circumstances foreign to their character. Courage and military talents require almost continual aliment. A long peace may effect a change in the martial spirit of the most valourous nation. And although Spain has taken a part in all the wars of this century, it may still be said, that, since those of Italy terminated in 1748, her troops have made no real campaigns. The Spaniards themselves presume not to give this name to the

the short war with Portugal, in which they encountered but few obstacles and little danger. The expeditions to Algiers in 1774, and Buenos Ayres in 1776, were soon ended; and afforded but few opportunities for the display either of courage or experience. Add to this as an apology for the Spanish officers, that the life they lead is only calculated to stupify their faculties. Most of their garrisons are solitary and ill provided, without resource either for instruction or innocent pleasures; the officers have either no leave of absence, or seldom obtain it, even to regulate their private affairs. It is undoubtedly a means of making excellent officers of those who are obliged uninterruptedly to attend to the duties of their profession. But man has always need of a stimulus to excite him, and this obscure and monotonous life, unrelieved by any manœuvres on a grand scale, by any large assemblages, finishes in paralyzing all activity, or diverts the mind to improper objects. It has besides the inconvenience of rendering the service less desirable, and keeping from it those to whom a small fortune or a liberal education offers other resources. The Spanish army however has lately undergone an advantageous reform in this respect. The different schools that have been established, furnish it with persons of distinguished abilities. A martial spirit has been awakened in the nobility of the first distinction, who embrace the profession of arms; and some of its members, renouncing the pleasures and idleness of the capital, gave their countrymen during the last war examples of devotion and courage worthy of imitation.

All I have said of the infantry is applicable to the other corps of the Spanish army. It has eight regiments of dragoons consisting each of three squadrons. The heavy cavalry consists of fourteen regiments, including the brigade of *carbiniers of Queen Mary Louisa*, raised in 1793, and one of Spanish hussars formed in 1795. Besides these it has a corps of royal carabineers which has a perfectly different organization.

Each regiment of cavalry is composed of three squadrons, excepting two which has four; each squadron consisting of 100 men in peace, and 180 in time of war.

Were the different corps complete, Spain would have an army of 11,880 horse. I have been however assured, that in 1776, at the approach of a war, which soon after took place, she had no more than 8000 effective horse. In time of peace, the heavy cavalry and dragoons are far from having their complement of men; and of this reduced number 80 are dismounted.

The consequence is, that the cavalry is less agreeable than it otherwise would be to the Spaniards, because the new recruits remain three or four years on foot, waiting for their turn to have spare horses.

How comes it that there exists so great a scarcity of horses in a country, which, under Philip IV., could have furnished 80,000 for military service, a contingent to which almost all the provinces could then have contributed; for Andalusia was not the only one renowned for the beauty of its horses. Pliny praises those of Galicia, and the Asturias. Martial, those of his province, Arragon, &c. But the multiplication of mules has almost annihilated the race of good horses in the two Castiles, in the Asturias, and Galicia.

In order to obtain a large number of these indefatigable animals whose utility and length of service more than compensate their mean appearance, the finest mares in the kingdom are exclusively set apart for breeding them in every part of Spain. Notwithstanding this the supply is insufficient for the demand, which is every day increasing, so that Arragon, Navarre, and Catalonia are supplied by a lesser species from some of the French provinces. The number imported is so considerable that it may be fairly rated at 20,000 annually, without danger of exaggeration. It is evident that the extravagant multiplication of mules is the cause of the degeneracy of horses, in the greater part of the

the provinces of Spain; for Aadalusia, where the laws prohibit the covering of mares by asses, is the only province in which the horses retain their original beauty. And one would be led to imagine that even these, although they may have lost nothing of their life, figure, and docility, have yet lost somewhat of their vigour. For, from the account of our best officers of cavalry, nothing can be more brilliant than the first charge of Spanish cavalry, nay, even the second, but at the third their horses are spent.

Hence it appears, and it is allowed by all impartial Spaniards competent to give an opinion, that the best racers have lost somewhat of their strength. They have no other method consequently to renew it but by crossing the breed.

In the interval of this complete regeneration, some grandees on their own estates, and the King at Cordova, and at Aranjuez, are sufficiently occupied in the preservation of the fine race which remain. Some studs of horses have made their appearance at Madrid, and at the different royal seats. Should this fashion become general, studs of mules will be out of vogue, and a greater number of people will find themselves interested in multiplying and perfecting the breed of horses.

Already has the Prince of the Peace, who appears to be seriously intent on whatever may contribute to the prosperity of the state, attempted an experiment which probably may occasion a renewal of the excellent breed of Spanish horses. He has caused to be brought from the breed of Normandy a hundred handsome mares, for the studs of Cordova and Aranjuez. Spanish naturalists pretend, that, from the union of our Norman mares with the Spanish stallions, foals will be dropt uniting the shape and strength of the female, with the beauty and swiftness of the male. Analogy drawn from similar consequences in other animals seems to support the opinion, but experience, the best teacher, must determine as to the effect. The experiment however, without being very costly, may eventually be useful, and possibly remunerate Spain for the acquisition we are about to make from the crossing of sheep of the Spanish breed. Thus it is that great nations, rivals without being jealous, renouncing exclusive endowments, and multiplying benefits, avenge themselves one of the other in a beneficial and laudable manner.

Nature, which has been so bountiful to Spain in all the necessities and comforts of life, who denies her scarcely any of the enjoyments of peace, has not been sparing towards her in the materials of war. She is prodigal to her of iron, copper, lead, and saltpetre; and the excellence of her artillery enables her to dispense with foreign dependence.

It was in 1710 that the Spanish artillery took its present form. At that period it was collected into one regiment, composed of five battalions, which have recently been extended to six, without including the cadets, who are brought up at Segovia.

This regiment has 304 officers, and its commandant-general for colonel, who, at the same time, is inspector of the corps.

Count Gazola, recalled from Naples by Charles III. when he ascended the throne of Spain, began the improvements in the artillery, which had been neglected under Ferdinand VI., like several other branches of administration. The new monarch requested the court of France to send him a founder. M. Maritz was accordingly sent, and made several great alterations in the Spanish founderies. He adopted the method of casting the cannon solid, and boring them afterwards. Envy created him many obstacles, and some unsuccessful efforts seemed to justify the ill will with which he was received; for many of the cannon cast in this new manner were found defective. He was moreover unpardonably culpable in casting a great quantity of Mexican copper, without ascertaining whether the metal was sufficiently solid. Most of these cannon failed in the proof, and the clamour against him became general. His natural courage, and the protection.

protection of the King, supported him against the tempest ; and he continued to employ his best endeavours in the service of Spain, although he despaired of ever being useful to it. At length he quitted it, leaving behind him his method and principles, with the precautions and improvements he had been taught by experience. At present, even his enemies acknowledge that he has been of real service to the Spanish artillery. The manner in which it was served in the war with England, particularly at the siege of Mahon, and even during the war terminated by the treaty of Basle, have proved that Spain in this department of the military art has not been retrograde.

Count Gazola, an Italian, was at his death succeeded by Count de Lafcy, an Irishman by birth, who had been successfully employed on some missions of a political nature in the north, and whose being placed at the head of the artillery as a recompence, excited some surprize. At his death, in 1792, Count de Colomera obtained his place, formerly Don Martin Alvarez, who presided for a time at the siege of Gibraltar. Upon his resignation, Don Joseph de Urratia took his place, who commanded the Spanish army at the time of the conclusion of the treaty of peace at Basle, and was afterwards made captain-general. His military talents secured him the unanimous suffrage not only of his own country, but even of the enemies to which he was opposed. Wherever wisdom and information are necessary, he is in his element.

The Spanish artillery has many distinguished officers. The superior merit of General Sertosa, who commanded at the siege of Mahon, has been acknowledged in foreign countries.

Spain produces more lead than is required for her arsenals. Its principal mine, that of Linarez, in the kingdom of Jaen, yields much more than is sold in Spain for the King's account ; and notwithstanding the others be imperfectly worked, not yielding more than 8000, Spain can yet export a thousand tons per annum.

There are several copper mines also in Spain. That of Rio-Tinto is the most productive ; it supplies a part of the artillery. But the copper of the Spanish Indies is also laid under contribution. That of Mexico and Peru is refined and manufactured in the two royal founderies of Barcelona and Seville. The cannon cast there have two-thirds of Mexican copper to one of that of Peru.

Biscay and the Asturias furnish the iron necessary for the Spanish artillery. Cannon made of this metal are cast at Lierganes and Cavada. Before the war with France the cast iron came from the forges of Eugui and Muga. In the phrenzy of conquest these two establishments were destroyed by our armies, as if we were combating an irreconcilable enemy, whose means of defence we were desirous of annihilating. Since policy so frequently occasions war, it ought not only to pardon, but minutely directing its operations, to act as a corrective to the heedlessness of elated victory. Since the peace Spain, taking advantage of this lesson, has established new forges in places at a greater distance from her frontiers, and a manufactory of fire-arms at Oviedo. She has besides manufactories for musquets at Placentia and Ripol ; and, lastly, one of sword-blades at Toledo, which has been twenty years established, and which even at its first setting off promised to revive the ancient reputation of the blades of that city.

Spain is one of the richest countries in Europe in saltpetre. La Mancha and Arragon had the reputation of furnishing this article of an excellent quality. A French company had undertaken the preparation of it, and for this purpose sent M. Salvador Dampierre to Spain. This agent, though crossed in his plans, failed in his undertaking. On a piece of ground near Madrid he made some unsuccessful experiments, by which government wisely profited. The ground in question is found to contain saltpetre of a quality superior to that of La Mancha and Arragon ; in consequence of which a manufactory

nufacture was begun there in 1779, which was entrusted to the management of Don Rofendo Parayuelo, one of the commissioners-general of rents. In 1785, it was one of the most curious establishments in the capital; it kept four thousand men in employ. After two boilings the saltpetre is fit for making powder. The first boiling requires eight or ten days, but a few hours are sufficient for the second. Water is conveyed in abundance to this manufacture by subterraneous pipes. Neither has wood been wanting since this opening affords a consumption for that, which the inhabitants of the hills of Guadarrama did not before even give themselves the trouble of cutting.

The earth which produces the saltpetre recovers itself with surprising promptitude. The *caput mortuum* is brought to the environs of the manufacture; and sometimes in less than a month the air, impregnating it afresh with nitre, renders it fit for a second operation. It has been remarked, that after the continuance of a certain wind, the neighbouring soil becomes whitened, as if snow had fallen upon it. In 1792, I found this manufactory surrounded with walls, and in full work.

The saltpetre is sent to the powder-mills at Alcazar, St. Juam in La Mancha, to Villa Fetiche in the kingdom of Valentia, to Murcia, and Granada, the employment of which mills has been considerably increased since the establishment of the manufacture at Madrid. When in its infancy, the proprietors engaged to furnish government annually with eleven thousand quintals. During the war they exceeded their engagement, and the director flattered himself, in 1784, that the establishment would soon yield thirty thousand quintals a year. The manufactory, however, could not supply the enormous consumption of powder at the camp of St. Roch: and although 35,000 quintals were sent thither when the attack was to be made on Gibraltar, government was obliged to hasten the arrival of more from Genoa, France, and Holland. At present it wholly supplies the demand of Spain, and will soon become a new branch of exportation.

Hitherto the quality of this new powder is incontestably good; it is said to carry twice as far as common powder; for which reason Charles III. and the infants made use of no other in shooting; and the King of Naples some years ago used to receive a small quantity of it by every weekly courier from Madrid. Spaniards as well as foreigners were eager in the purchase of it. I saw our admiral Guichen at the time of his visit to the Escorial, where he had an opportunity of witnessing the excellence of it. He begged half a score pounds of it of the King as a favour; and as simple in his manners, as he was brave and religious, with no other luggage than his night-cap, his breviary, and his ten pounds of powder, he set off on his journey to Madrid.

Spanish America will soon be independent of the mother country with respect to this commodity. The minister Galvez ordered three manufactories of saltpetre to be established at Lima, Mexico, and Santa Fé de Bogota. For the improvement of these manufactories he sent the same Salvador Dampierre to America, who failed in his attempts in Europe. Thus the Spanish colonies possess within themselves these means of defence. Will not the metropolis have cause to repent this? The seeds of discontent, which at different intervals for several years back, have shewn themselves in such an alarming manner, have they been entirely stifled in their growth?

The corps of engineers is separate from the artillery, as is the case in France; it was not established before the year 1777. It consists of ten directors, ten colonels, twenty lieutenant-colonels, thirty captains, forty lieutenants, and forty second-lieutenants: in all, one hundred and ninety officers, who are indiscriminately occupied in the superintendence of fortifications and civil architecture. There is but one commander for each of these works; and he who presides over the latter retains at the same time his rank in the army, although he cannot properly be considered as a military man. The person

who at present hold the place is truly a military character, General Urrutia. It was previously held by Don Francisco Sabattiné, an Italian architect of ability, who at the same time was a lieutenant-general in the army, he filled this situation for twenty years before his death. In right of his station, General Urrutia has under his direction the three academies at Barcelona, Cadiz, and Zamora, established for the instruction of those intended for engineers, as well as such cadets or officers in the army as may be studious of learning the mathematics.

In 1796 a new description of engineers was formed, under the title of *Royal Corps of Cosmographic Engineers of the State*; it has, like the other, somewhat of a military frame, its director and four principal professors holding the rank of captain.

As to the distinguishing marks of the different ranks in the various regiments, I shall only observe that the general officers have an uniform very much resembling that worn formerly by French officers of the same rank. The colonels, lieutenant-colonels, and majors wear no epaulettes. The captains wear two epaulettes; the lieutenants, one upon the right shoulder; and the second lieutenants, one upon the left. All officers who are not at least field-majors are obliged continually to wear their uniform even when they appear at court. These uniforms are white for the national infantry, except the Spanish and Walloon guards, who wear blue. The uniform of the cavalry is indifferently blue, green, red, or yellow. The artillery and the Swiss regiments wear blue. In every regiment the men wear its name on their buttons; this is for the most part that of a town or a province: the Swiss regiments alone bear the name of their colonel. According to some late regulations, no person can become an officer without having been a cadet.

An establishment has been formed about twenty years, very well calculated to produce officers of merit, I speak of the military school, which we have before noticed more than once. Its founder, Count O'Reilly, possessed the talent suited to the presidency of a similar establishment, and making it prosper.

Born in Ireland, of catholic parents, he entered the Spanish service very young, and in Italy served in the war of the Austrian succession. It was there that he received a wound which caused him to limp the rest of his days. In 1757 he was under the command of General Lacy, and until 1759 when he joined the French army. Marshal Broglie conceived a particular esteem for him, and recommended him to the King on his return to Spain. He afterwards made a campaign in Portugal, where he distinguished himself. Peace being made, he was made field-marshal, and lieutenant-commandant at the Havannah, whence he afterwards passed over to Louisiana, the colonists of which province were refractory under the Spanish yoke. The means he exercised for restraining their insurrection drew on his head the most bitter execrations. In the course of his long career O'Reilly experienced all the shades of favour and disgrace. The affection which Charles III. entertained for him was for a long time insufficient to protect him from the hatred of the people.

Few men have inspired the same degree of enthusiasm and hatred. His conduct at Louisiana, where his name will long be coupled with maledictions; and his unfortunate expedition to Algiers in 1774, caused him to be ranked among wicked men and bad generals; possibly he neither deserved the one title nor the other. Skilful, insinuating, active, even physically, notwithstanding his lameness, and well acquainted, at least in theory, with his profession; he possessed at the same time the art of rendering himself necessary on different occasions. After languishing in a kind of exile, not however without maintaining his dignity, he was made commandant-general of Andalusia, and had his favourite bantling, the military school, removed from Avila to Port St. Mary,

near Cadiz, his place of residence. In this command he displayed genuine talents for every branch of administration. He was not beloved; but he concealed his despotic character under the mask of such engaging manners, that he appeared to be obeyed less through fear than devotion, and was regretted when the implacable Lerena, who had had some sharp altercations with him while intendant of Andalusia, caused him to be removed to Galicia. Upon the accession of Charles IV., he thought he might again appear at court, but was received under circumstances more mortifying than befitted his confidence, and was ordered to the kingdom of Valentia. Ever indefatigable, he fought there to render himself of service in proposing plans, and giving his advice, at the time that war broke out in France. The command of the army of Catalonia was entrusted to his friend General Ricardos, who was also by descent his countryman, his father, an Irishman, having married the daughter of the Duke de Montemar. Ricardos, any more than O'Reilly, was no great favourite with the new court, notwithstanding his talents and his long and useful service. Ricardos dying, after some success which justified his appointment, O'Reilly was named to succeed him. This unexpected triumph was his last. While on his march to take the command of the army, luckily for his fame, he died. Striking reverses befell his successor, the Count de la Union; young, brave, and full of ardour, but with all these qualities, without experience. Probably the same fate would have awaited O'Reilly; he was no more, and we gave him our regret. He survived, however, the establishment which he had founded; the military school, after having produced distinguished officers for the Spanish infantry, died away in his last exile.

The government does not forget the declining years of their military men. There is a corps of invalids in Spain, as well officers as soldiers; but the forty-six companies, of which it is composed, are distributed at Madrid, and in the provinces, where they perform an easy duty. Those incapable of all service form another corps of twenty-six companies, divided between Seville, Valencia, Lugo, and Toro. Both these corps are under the inspector of the infantry.

In Spain there is no order of knighthood particularly destined to the reward of officers. Charles III., however, made a point of conferring on none but these the four military orders; yet without excluding them from that he has himself founded. But these favours depend entirely on his pleasure, and not upon the length of service. Other means exist of rewarding old officers; the King bestows on them pensions, or rank on the staff at his different garrisons.

Neither are their widows forgotten in his beneficent distributions. In 1761, he established a fund from which they receive pensions according to the rank of their husbands. Eighteen thousand rials a year are paid to those of captains-general, twelve thousand to those of lieutenants-general, and in proportion to the widows of petty officers. This fund consists of a grant of 360,000 rials (4,09cl.), anterior to its establishment; a contribution of twenty per cent. upon what the King receives from the *spolios y vacante*, half a month's appointment paid once by all the officers of the army, and a deduction of eight maravedis from each crown of their pay; and all the property of officers dying without heirs, or intestate. Truly valuable institution, and worthy of imitation, which by insuring a subsistence to the widows of officers, without their standing in need of credit to enforce their claims, greatly encouraged military men to marry. A nearly similar plan has been adopted by the other classes of society, even by artisans.

The place of commandant-general of a province is an opening to general officers, but obliges them to almost a perpetual residence; for in Spain, bishops, intendants, governors, and commanders reside where they are employed, notwithstanding the resi-

dence of the sovereign, and the capital have the same temptations for ambition and dissipation as in other countries.

All the commandants of provinces bear the title of *captain-general*, which however must not be confounded with that of the first military rank. They sometimes, but improperly, receive the title of viceroy also, which regularly belongs to none but the commandant of Navarre, and those of the principal provinces of Spanish America.

The stations of these commanderies or captancies-general are, *Madrid*, for New Castile; *Zamora*, for Old Castile; *Barcelona*, for the principality of Catalonia; *Valencia*, for the kingdoms of Valencia and Murcia; *Palma*, for the kingdom of Majorca; *Pampeluna*, for the kingdom of Navarre; *St. Sebastian*, for Guipuscoa; *Port St. Mary*, for Andalusia; *Malaga*, for the coast of Granada; *Corunna*, for Galicia; *Badajoz*, for Estremadura; *Ceuta*, for the presidencies of Africa; and *Santa Cruz de Teneriffe*, for the Canaries.

None of those idle appointments created by favour, to the injury of the finances of the country, formerly so common in France, are met with in Spain. Our neighbours hence have two abuses less than we had to provoke a revolution, and which were in some measure the instigation of ours, this and the fastidious display of splendour which individuals of all ranks who held the chief places of the monarchy came to make at court. So dearly in every respect is a revolution purchased, that the philanthropist dwells with pleasure on every circumstance which tends to remove to a distance the dangerous necessity of such a measure. Let us now proceed to the Spanish navy.

CHAP. V.—*Spanish navigators, ancient and modern.—Departments of the navy.—Officers of the navy.—Sailors.—Construction of ships.—Naval force.—Its appointments.—Barbary regencies.—M. Florida Blanca.*

THE Spanish navy for more than half a century acted the first part upon the theatre of Europe, whether the spirit of discovery with which it was actuated be considered, or its character in war. The world will never forget the names of *Colon*, *Magellan*, or *Cano*, nor the power which encouraged their illustrious enterprizes. Neither will the names of *Quiros* and *Mendana*, less known although not less deserving of distinction, for their vast knowledge and sagacity, which modern observations have done justice to, be ever obliterated from the memory of the geographer. At the same period their navy could equally boast its warriors; but they disappeared with the *invincible armada*; and under the reigns of the three Philips it scarce preserved a vestige of its former fame. Charles II. left the navy, as well as the other departments of the monarchy, in the most deplorable state.

The efforts made by the Spaniards during the war of succession restored a momentary activity in naval affairs; but their skilful seamen were irremediably lost. In the two last reigns they have endeavoured, and not altogether ineffectually, to revive this part of the glory of their nation. I shall say nothing of *Don Jorge Juan*, or *Don Antonio Ulloa*, who accompanied Condamine in his expedition; the object of it was only to make astronomical observations. The Spaniards have more recently undertaken voyages of discovery, or for the purpose of taking the bearings of coasts hitherto badly known; but these appear to be kept back from the public eye, an affectation for which they certainly deserve the reproof of the lovers of science; although, in spite of their jealous secrecy, the details and result of the greater part of their voyages are pretty well known to the world.

In 1768, a vessel which sailed from Montevideo, coasted along that little frequented shore which intervenes between the river of Plato and the straits of Magellan, and thence proceeded to reconnoitre the Falkland islands, a cruize which threatened to cause a rupture between England and Spain.

In 1769 and 1770, by orders of the Marquis de Santa Cruz, viceroy of Mexico, and under the direction of *Don Joseph Galvez*, who was then sitting himself, by his attention to the interests of his country, for the office of chief minister, which he has since filled with so much honour to himself, two expeditions were dispatched at the same time, the one by sea, and the other by land, from San Blas, a port in Mexico, under the 21° of north latitude, to examine the port of Montirey, which, notwithstanding it was laid down in the charts with tolerable exactitude by Vezcayno, who discovered it in 1692, the naval detachment had great difficulty in finding again.

About the same time, other Spanish mariners, namely, *Don Philip de Gonzales*, and *Don Antonio de Monte*, the one commanding the *St. Laurence*, of 70 guns, and the other the *Rosalie* frigate, of 36, sailed from Callao de Lima, on an expedition to the islands of the South Sea, and fell in with Easter island, not for the first time, (for the merit of the discovery is indisputably due to Roggewein, the Dutchman,) but before Cook and Peyrouse; and under conviction of its not having been before discovered, took possession of it in the name of the King of Spain, and erected crosses on three little hills, giving it the name of *San Carlos*.

In 1775, Bucarelli, viceroy of Mexico, dispatched two officers from San Blas, Don Juan de Agala, and Don Francisco de la Bodega, to take bearings of the coast of California, as high up as to the 65th degree. They were, however, unable to proceed higher than 57 degrees, and returned, after having taken the plans of different small havens on the coast, such as Los Remedios, de Los Doleros, &c. Don Antonio Morrelle, who afterwards obtained, possibly on too slight grounds, the title of the Spanish Cook, was on this voyage pilot to the vessel commanded by Don Juan de Agala.

He since, at his individual expence, has made several voyages, which, on account of the difficulties he had to encounter, obtained for him some degree of reputation. He undertook more than once, in spite of the monsoons which reigned at the time, different voyages from the Philippines to the western coast of America; and thus it was that in 1780 and 1781 he arrived from Manilla at San Blas on board the *Princess*.

It was well known also that the Spaniards had touched before Cook at Otaheite, the discovery of which belongs neither to our contemporaries, nor Commodore Wallis, nor even our Admiral Bouganville, whose relations respecting this island have taught us to speak of it with the tenderest emotion. It is to Quiros that we are indebted for the first discovery. It is seen in the second voyage of Captain Cook, that the Spaniards left two of their countrymen there; but we have as yet very few details of his expedition, the work being yet in manuscript.

There is yet a later voyage of theirs which has been published. It is that which *Don Antonio de Cordova* made in the *Santa Maria de Cabeza*, in the years 1785 and 1786. The anonymous author, who has given an account of it, under the title of, *Relacion del ultimo Viage al estucho de Magellanes in los anos 1785 & 1786*, and who appears to be well versed in nautical knowledge, has added to it a description of all anterior voyages, and extracts from several valuable manuscripts which were not hitherto known *.

* M. Fleurieu, in a work, meritorious in every point of view, published in 1799 and 1800, entitled *A Voyage round the World by Captain Marchand*, treats both the ancient and modern navigators of Spain with some severity; but the Spanish government, which principally deserves these reproaches, in order to disculpate itself and them, laying mistrust and jealousy aside, and imbibing the same desires of propagating knowledge with the other powers of Europe, will doubtless ere long permit them to be given to the world.

Lastly, still more recently, a naval officer of talents, M. de Malaspina, sailed from Cadiz on a voyage round the world. His expedition was of the same intent with that of Peyrouse; and as well as the unfortunate French circumnavigator, he departed furnished with proper instruments for all kind of observations. On his return to Cadiz he deposited his manuscript in the hands of Father Gil, a learned monk, who while employed in looking it over, and preparing it for the press, having in common with the captain, for a cause but too well known, incurred the anger of the court and its advisers, was, together with him, put in prison; the work was suspended, and the satisfaction which the learned in Europe promised themselves to enjoy was adjourned *sine die* *. How silly for such as are calculated to go round the world, to give the history of the voyage, and enlighten mankind, to lose their time in following court intrigues.

This is the extent of what the Spaniards have latterly effected to increase the extent of navigation. Their ships of war prevent them other palms to gather. Let us see what they have done, and what they are capable of, in this dangerous career.

Charles III. found the navy in an imperfect state, notwithstanding Ferdinand VI. had less neglected this than other branches of the administration, and notwithstanding his minister, the Marquis de la Ensenada, be esteemed its restorer. It is divided into three departments, those of Ferrol, Carthagená, and Cadiz.

The first presents real inconveniencies, in the unhealthiness of the climate, and the frequent rains which retard operations in the port, from which no vessel can sail but with one particular wind. This department were perhaps better at Vigo, for the northern coast of Spain, the climate of which is very healthy, the soil fertile, and the harbour safe and spacious; the change has more than once been in contemplation; but arsenals and magazines must have been established at Vigo, where at present there is none; the harbour, now an open road, must have been fortified at a very considerable expence; and, lastly, its vicinity to Portugal, which has long been considered as the natural enemy of Spain, for no other reason, perhaps, than because it is its nearest neighbour, seemed a forbidding circumstance. These considerations of œconomy and policy have collectively prevented the execution of this project.

The department of Carthagená has many advantages over that of Ferrol. The safety of its harbour is known to a proverb among seamen, who say, *There are but three good ports for vessels, the month of June, that of July, and the harbour of Carthagená*. This safety extends to the arsenals and dock-yards, which in a narrow and insulated space, may, if I may use the expression common with the Spaniards, *be locked up by a single key*. Carthagená is consequently the port at which the greatest number of ships are built, caulked, and careened. It possesses besides an artificial dock, deserving of admiration, even after seeing the famous *forme* at Toulon. Charles III., in 1770, established there a corps of engineers for the navy, under the direction of M. Gauthier, of whom I shall hereafter speak.

The department of Cadiz is, however, the most important of the three, from its favourable situation for the departure of fleets. As I mean to conduct my reader to Cadiz, where I resided some time, I shall refer him to my account of it for the information I have been able to collect relative to its port, dock-yards, and arsenals, which will serve as a supplement to what I shall here say of the Spanish navy.

It is officered much in the same manner as that of France before the revolution. Instead of vice-admirals, there are captains-general, who enjoy the same honours as those

* In 1797, it was expected that the voyage of Malaspina would shortly be published. The expectation has not been satisfied, which has given rise to an opinion that a different cause to that suspected acts as a preventative to its publication.

of the army. At present (1802) there are but two captains-general of the navy, the *Bailli de Valdis*, who has been minister of this department for fourteen years; and Don Juan de Langara, whom we have before noticed; but above them all, as well as above all the captains-general of the army, is one more highly privileged, for whom the rank of generalissimo of the navy has been created, I allude to *El Principe de la Paz*. Immediately after the captain-general, rank, as in France, the lieutenants-general, who were in 1788 seventeen in number. There were thirty in 1796, ten of which had been made the year before, at the conclusion of a war which had afforded but few occasions of displaying their courage and capacity. At present there are but eighteen.

We have lately had an opportunity of judging of the value of several of them; *Admiral Mazaredo*, for example, who for more than a year that he resided at Paris, charged with a mission of importance on matters relative both to politics and naval affairs, and who at present (1802) is displaying his activity in the department of Cadiz, where he resides. *Admiral Gravina*, who commanded the Spanish Squadron during the time of its anchorage at Brest, and who so justly deserved the praise lavished upon him by our admiral, for his conduct in the command of the auxiliary squadron at Saint Domingo. *Admiral San Domingo Grandellana*, whose zeal and capacity have advanced him to the ministry of the navy. *Admiral Don Juan Moreno*, who, in spite of the deplorable accident which befel two of his ships before Cadiz, did not yet forfeit the well-earned title given him by our sailors, the witnesses of his courage and his misfortune, of a *brave and respectable admiral*.

Beside them may be placed several admirals who in former wars had acquired distinguished reputation, and who have only needed opportunities to enhance it in the two last.

In this number are the *Marquis de Socorro* (formerly *Don Francisco Solano*), known by that name for several voyages, in which he displayed considerable nautical abilities; and who had the command of the Spanish Squadron, in 1783, which laid off the coast of Terra Firma, and which was destined to second us in the decisive attack of Jamaica in 1783, when a frigate brought us the news of peace; *Don Francisco de Borja*, at present captain-general of the department of Carthage; *Don Felix de Texada*, captain-general of that of Ferrol; *Don Gabriel de Arístizabel*, &c.

After the lieutenants-general of the navy come the commodores, who were no more than fifteen in 1788; they were raised to the number of forty-four at the end of the war in 1795, and are now reduced to thirty-four.

Among the commodores are many who do honour to the Spanish navy; such as *Don Francisco Munoz*, known for his boldness; *Don Thomas Munoz*, by his rare talents for hydraulic architecture; and *Don Antonio Cordova*, for misfortunes which his bravery but ill deserved.

The Spanish navy has an intermediate rank between a commodore and a post-captain, which is that of brigadier; there were in 1788 forty-four of this description; at the peace of 1795 fifty-five, thirty-two of which had been promoted for service during the war. At present their number is forty-two.

The number of captains in 1788 was only forty-five; at present there are one hundred and twenty-three.

By this comparison it is visible, that whether war be fortunate or otherwise, it presents the advantage of numerous promotions. But on an element so perfidious as the sea, success does not always attend upon courage and skill; and skill and courage yet deserve reward.

One rule, to which there are very few exceptions, is, that to acquire rank in the navy, it is necessary to have passed through the *Garde-marine*. This corps was established in 1717; it consists of three companies, divided among the different departments, each containing ninety-two cadets, for whose instruction there is an academy, composed of a director and eight professors.

With these means of obtaining the theory of that difficult and perilous art, navigation, with the facility which the vast extent of the Spanish monarchy presents of acquiring practical knowledge, from frequent and distant expeditions, malignity may find room to criticise with severity the conduct of the officers of the Spanish navy; and we know that even in Spain this prerogative was freely used in the course of the American war.

It is not for me to form an opinion of these decisions, I leave that to our sea officers who in that war failed and fought by the side of their allies, from 1779 to 1782; let them declare if such decisions were not frequently dictated by prejudice and injustice. The war which Spain waged with us from April 1793 to the peace of Basle in 1796, may make our opinions appear too severe, from their officers being judged by enemies. Yet, if the bay of Rosas be excepted, whence a small squadron, commanded by the intrepid Gravina, defended with great zeal the citadel of the same name, and the little fort *Bouten*, and the port of Toulon, which the combined squadrons got possession of, owing to treachery; where during this war did the Spanish navy shew itself to any advantage? Its own nation groaned and blushed for its inactivity. But we know that their irksome sensations were participated by the navy itself, which was prevented shewing its value by the extreme circumspection of the chief of its department; a wise and cautious man, better adapted to organize fleets during peace, than to sketch out plans for their active service in war; while in addition, happily for us, there existed in the combined fleets that want of intelligence which was to be expected between two nations, one of which haughty, although weak, is the least of all others disposed to crouch before the capriciousness of arrogance; two nations momentarily united by interest, but which could but ill agree as to their object or plan of action.

As soon as this unnatural union was abolished, to the great sorrow of the one, and the complete satisfaction of the other, the Spanish navy instantly shewed itself disposed to cancel the past errors of its government; and if in the succeeding war, in which she beheld as her enemies those who before had been her allies, it has failed of signaling itself as it wished, circumstances alone were to blame.

It is well known that a considerable part of her navy having entered Brest, at the particular desire of our government, shared there the same fate with our own, and was for a long time blockaded by superior force. But it cannot be forgotten, that otherwise, on every occasion which offered, the Spanish sailors gave satisfactory proofs of constancy and intrepidity.

The English, in particular, must recollect their long and fruitless blockade of Cadiz; the reception which they met with at the Canaries in 1797; before Ferrol in 1800; particularly their expedition against Cadiz in the month of October in the same year; and, lastly, their vain attempt on the coast of Algeiras in the month of June 1801, where the glorious efforts of our sailors were so well seconded by the foresight and valour of their allies; and, on our part, we shall not forget the manner in which they assisted us recently, on our expedition to St. Domingo.

At any rate, the most severe judges will agree, that there exists much intelligence and theoretic knowledge in the Spanish navy. Recent proofs have been afforded of this,

this, in the works contained in the depot for naval charts at Madrid; and in works given to the world latterly by some officers in the navy, truly learned in their profession, although but young, Messrs. *Mendoza*, *Guliano*, and the two brothers *Ciscar*.

The officers of the navy are, with respect to military rewards, upon a footing with those of the army. Vice-royalties, governments of provinces, or places in America, are indiscriminately given to general officers of the army and those of the navy. But the latter have, in the exercise of their profession, means of enriching themselves, which are looked upon as lawful in Spain, which they sometimes abuse, and which render less necessary *the bounty of the King*. This cupidity might be excused in conquerors; but what title does it deserve when, as is pretended, it has been the cause of their failure of success?

The sailors are classed as in France, and divided among the three departments. The registers of the classes make the number of the whole amount to from 55 to 60,000. But a good fourth of this number must be deducted for those unfit for sea service, and who cause their names to be inscribed for no other purpose than to enjoy the privileges attached to the character of an inscribed sailor. Let the department of Ferrol serve for a specimen, which furnished scarcely 15,000 seamen out of 20,000 inscribed in the year 1792. And even of this smaller number, there are many on whom little reliance can be placed. The Catalans, for example, notwithstanding they are good seamen, are very unfit for ships of war, from their being accustomed to the luttin sails, with which they navigate to the Baltic, and even as far as Spanish America, and consequently are awkward on board of vessels differently rigged. They are moreover lofty, and rebellious, and prefer merchant ships, on board of which they meet with better treatment, and receive larger pay.

To rate the number of sailors which Spain can furnish higher than 36,000 to 40,000, would be an exaggeration. In 1790, when Spain was on the eve of a rupture with England, she found it difficult to equip 32 sail of the line; she might, however, send a much larger number to sea, provided she were able to man them. Let us now trace the progress of the Spanish navy from the beginning of the reign of Charles III.

After the peace which followed the disastrous war of 1761, Spain had no more than 37 sail of the line, and about 30 frigates.

In 1770, she had 51 sail of ships, carrying from 112 to 58 guns; 22 frigates, 8 horcas, 9 xebecs, and 12 other small vessels; in all, 102 vessels of war.

In 1774, she had 64 sail of the line, 8 of which were three-deckers, 26 frigates, 9 xebecs, and 28 other small vessels; total 142.

In 1778, she possessed 67 sail of the line, 32 frigates, besides smaller vessels; in all, 163; and at the end of the war, notwithstanding her losses, she had nearly the same number.

At the end of 1792, upon her declaring war, she had 80 ships of the line, 6 of which unserviceable, and 14 in very bad condition. At this epoch, then, she had 60 remaining to oppose to us. She lost four ships in this war. In that which succeeded with England, she had greater losses to repair, and already her government is employed with great activity in this department.

The complement of men on board Spanish vessels differs according to circumstances. Properly there ought to be ten men to each gun, yet vessels of 74 guns have scarcely 650. At the end of 1792 some had no more than 500; and the scarcity of good sailors frequently obliges them to be content with 300 men for their vessels of two decks.

But how comes it that Spain, in proportion to her population, has so few sailors? Is it not because the merchant service is the real nursery for the navy? And the commerce
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of Spain is rather of a passive than active nature ; its interior navigation being reduced almost to nothing and its trading vessels to nearly the same condition.

A few years ago its merchant vessels amounted to between 4 and 500, of which Catalonia furnished three-fourths, and Biscay almost all the rest. What a difference between this number and that of England, who with a population greater by no more than four or five millions, possessed before the war which has lately terminated 7000 merchant vessels; and with Holland, which with no more than a third part of her subjects, has 6,500 vessels. However, within a few years the number of Spanish traders has sensibly increased ; a circumstance imputable to the establishing a free commerce with America.

To compensate for her deficiency of sailors to man her vessels of war, Spain has a marine infantry, composed of twelve battalions, each of six companies which should form a corps of 12,384 men, divided among the three departments. But these battalions are far from being complete. When I left Spain in 1793, the four battalions of Carthagena, for example, mustered no more than 2,300 men.

Besides these there is a particular corps of artillery, divided into twenty brigades, which should consist of 3,320 men ; but at the epoch above adverted to, it was but 1,500 men strong for all the three departments.

There is also a society of pilots, divided among the departments, with schools of pilotage in each.

In the reign of Ferdinand VI. the Spaniards adopted English principles in building their ships. Don Jorge Juan, one of the most able naval officers as well in theory as in practice, had studied ship building from its true source, and afterwards drew to Spain some English ship-builders. When Charles III. came from Naples to take possession of the vacant throne, he found the building of the Spanish ships entrusted to individuals of a nation which had but too much power in the cabinet of his predecessor, and which at that time was at war with France. An implacable enemy to England, ever since the imperious lesson she gave him at Naples, and moreover religiously attached to the glory of his house, he was not tardy in joining us. In this war he became a victim to his affection for France. The English took from him the Havannah, and twelve ships of war which were in that port. This check given to the Spanish navy was a new motive with the monarch to put it upon a respectable footing. He renounced the English manner of building, and requested of the court of France a French ship-builder. The Duke de Choiseul sent him M. Gautier, who, although a young man, had already given proofs of great talents in his profession. This stranger was looked upon while acting for the navy, as M. Maritz had been while employed on the artillery. Spirit of party, national prejudices, and more especially the jealousy of some individuals, created him, as they had done M. Maritz, such difficulties as almost suppressed his zeal. The Marquis d'Osun, then ambassador from France, supported him in his experiments, and enabled him to triumph over his enemies. He began his labours, and displayed in them equal activity and intelligence. His first efforts, however, were not followed by complete success. The form of the vessels of every rate which he constructed enabled them to sail with a velocity until then unknown to the Spaniards ; but they were found not to have sufficient room for the management of the guns, which made it very difficult to fight them in bad weather. He has since improved his method to such a degree as to leave but little to desire in that respect. A great part of the Spanish vessels employed in the late war were built by M. Gautier ; and several of them excited the admiration of both French and English seamen. The Conception, built according to his plan, was judged by intelligent persons of both these nations, to be the finest vessel in Europe. But while we do justice to the shape and solidity of the Spanish ships, it must be admitted that all
feamen

seamen exclaim with reason against their heaviness of sailing. This I have been told was owing to their manner of rigging and bad stowage, which appears probable, since those taken in 1780 by Admiral Rodney from M. de Langara, acquired under the management of the English, a celerity of which they were deemed incapable.

Gautier is not the sole author of the change. He has formed artists who share that merit with him; and Spain has national ship-builders, who, without his aid, have improved their art, and will render his loss less sensible to the Spanish navy. The displeasure of the minister Castijon, formerly his friend, had for some years condemned M. Gautier to inactivity; and the court of France took this occasion to reclaim from her ally a subject who seemed to have become useless. The King of Spain restored M. Gautier to his country, continuing the salary he enjoyed in the Spanish navy. But with the restriction that he should again dedicate his talents to the service of Spain, if hereafter need should require them. The revolution robbed him of this income. Gautier for all revenge furthered it to the extent of his power, and was nigh perishing in midst of its storms. A sort of justice was done him by placing him in office, but in a situation less brilliant than that which his talents and his sacrifices might justly claim*.

Since he left Spain I have been witness to the regret which his departure occasioned, even in those who had opposed or were hurt at his success, which proves that with this nation, truly loyal and generous, justice still gets the better of her prejudice against foreigners.

My own experience has proved to me that this is exaggerated, or at least that it deserves excuse. What nation, in the same circumstances as Spain, would not have shewn more of this odious sentiment? Can it be supposed when Louis XIV. pensioned learned foreigners; when he fought beyond his frontiers for renowned artists or skilful manufacturers, that he did not excite against them the hatred of the French, who imagined that they had a greater right to his bounty; or that their indignation did not manifest itself at the contempt shewn their talents by a preference to foreign industry? In the retinue of the French prince, coming to receive his crown, appears a crowd of foreigners, who fill all the avenues to the throne; French favourites†, French valets de'chambres‡, and French confessors§. The princess Des Ursins and the French ambassadors reign by turn in the cabinet. A Frenchman repairs to Spain to reform their finances||; and French generals are placed at the head of their armies¶. Shortly after an Italian ecclesiastic**, invited by the se-

* He died at Paris in 1800, in a state of mediocrity approaching want. Had he remained in Spain he would have finished his days in ease; for there old servants are never neglected, although their services be no longer needed, nor even where they have reason to be dissatisfied with them.

† The Marquis de Louville.

‡ Almost all the valets of Philip V. were French. During my first residence at Madrid I was acquainted with two (Toussaint and Amand) who towards the close of his life enjoyed great credit, and in whose arms he died. They were still alive when I left Spain in 1785. Thus by an uncommon destiny they survived for forty years that favor which they enjoyed to no other end than to do all the good within their power, particularly to their countrymen. Philip V., notwithstanding the lessons he received from his grandfather, never ceased looking upon himself to be a Frenchman. I was told an anecdote by one of his valets which he had frequently repeated to them, and which at once shewed his good nature and attachment to his country. The return of the infant, designed for Louis XV., excited vexation at the court of Spain which bordered on rage. On the first news of it, Queen Isabella, more irritated than any one, launched out into injurious language against the French, and obtained from her too easy spouse an order for all Frenchmen *without exception* to be banished from Spain. The order was just signed when Philip V. calls for his valets, makes them open his wardrobes and get ready his trunks. In the interval the Queen comes in and asks the motive of these preparations. *Do you not insist*, said Philip ingenuously, *that every Frenchman should leave Spain. I am a Frenchman, and am packing up for my journey.* The Queen smiled, and the order was revoked.

§ Le Pou D'Aubenton.

¶ The Marshal de Tessé, the Duke of Berwick, and the Duke of Vendome.

** The abbé Alberoni.

cond wife of Philip V., shakes the very pillars of the monarchy, by the agitation which his turbulent character excites in Europe; nor does his disgrace, the proper punishment of his tumultuous administration, till after a long time restore the Spaniards to their former state. A Dutchman *, still more extravagant, gains the favour of the monarch, seizes in one year on every dignity and every favour, and soon afterwards escapes loaded with the curses of the people, carrying from Spain nothing but the stigma of a state criminal. Under the succeeding monarch two foreign nations † reign by side the throne: an Irish minister ‡ raises himself by that intrigue, of which the court was the theatre, but by the easiness of his yoke, his being a foreigner is overlooked, and he preserves his influence under the new sovereign, who quits the throne of Naples for that of Spain. One of the Italians §, who accompanies the monarch, soon presides over the department of finances; and a few years afterwards another Italian minister || succeeds M. Wall. The discipline of the infantry is reformed by an Irishman ¶, whilst two Frenchmen improve **, one the artillery, the other †† the building of ships. At London, Stockholm, Paris, Vienna, and Venice, the Spanish sovereign is represented by foreigners ††. Strangers establish manufactures §§, and preside over the construction of great roads and canals |||, direct sieges ¶¶, command armies ***, cause plans of finance to be adopted †††, and offer money to government upon the most advantageous terms ††††. In commercial places these are still the persons who supplant the Spaniards by their activity and success. At Barcelona, Valencia, Cadiz, Bilboa, and other great trading cities, the richest merchants are foreigners. I have frequently heard the hatred they inspire in Spain declaimed against. I confess, that if any thing has surprized me, it is the quietness with which the Spaniards tolerate them in their country, and the kind disposition they have towards them, provided it be not damped by their haughty manners and insulting behaviour: and should some of the natives look upon them with an eye of envy, or be offended at the concourse of fortunate strangers, whose success of every kind seems incessantly to upbraid the Spaniards with idleness and ignorance; would not this be excusable by that attachment to national glory so natural and praise-worthy, and which so justly deserves the title of patriotism?

However since the end of the last reign, Spaniards exclusively have filled all those situations occupied before by strangers. The dominion of Frenchmen, Irishmen, and particularly of Italians, which was used to be tolerated with the least patience by the Spaniards, is drawing to its close; and if the viceroyalty of Mexico, given to the Neapolitan Marquis Branciforte, brother in law to the Prince of the Peace, be excepted, and which in two years afterwards was taken from him to be given to a Spaniard; the post of grand master of the Queen's household, occupied by a Neapolitan in disgrace at his own court, with a lieutenancy general held by a man, an Italian by the father's side, a Fleming by the mother's, the Prince of Castel Franco who commanded the army

* Ripperda.

† The English and the Italians; the former by M. Keen, their ambassador; the latter by the musician, Farinelli.

‡ M. Wall.

§ The Marquis of Squilace.

|| The Marquis Grimaldi.

¶ M. O'Reilly.

** M. Maretz.

†† M. Gautier.

††† The Prince Masserano, the Count de Lacy, the Marquis of Grimaldi, before he became minister; the Count de Mahon, the Marquis de Squilace after his retreat from the ministry

§§ At Valencia, Barcelona, Talavera, Madrid, &c.

||| M. le Maur.

¶¶ The same M. le Maur at Mahon; M. d'Arcon at Gibraltar.

*** The Duke de Crillon at Mahon, and at the camp of St. Roche; the Prince of Nassau on the floating batteries, &c. &c.

††† M. Cabarrus,

††† The principal French commercial houses established at Madrid.

which

which Spain opposed to us on the side of Biscay, and some general officers, or commanders of corps, Spaniards are in possession of the principal favor of all the offices of administration and all diplomatic appointments*. This is an additional pretext wrested from disaffection which in every country has owed its origin chiefly to similar circumstances. How many the governments which have been overturned or endangered through the dominion of foreigners, which dominion if it be any where tolerated must indeed be mild. In France there has been a Medicis, Concini, Mazarin, and Law; in Flanders a Duke of Alba; in Switzerland a Gesler; in Portugal, when for a short time incorporated with Spain, the agents of that power; Spain itself has had an Alberoni, a Ripperda, a Squillaci. Sovereigns are most inclined in fact to give full confidence to those who owe their all to them, who have no other country than their court; no property but their favour. Do they rightly calculate their interests? Do they not rather thus invite the dangers they would shun? More prudent sovereigns have less mistrust; and since they must have subjects, deem it best to attach them by affection. This is the only Machiavelism which such permit themselves, and which most willingly philosophy allows; this is the only true means in short to secure the permanency of their power.

With this they may manage without foreign favourites; inefficient ramparts against the fury of the populace, objects almost always odious, they are more adapted to provoke than to calm a tumult. In the insurrection of 1775, did the Walloon Guards protect Charles III. from the shame of flying precipitately from the capital? Were the Swiss guards able to save Louis XVI.?

But, let us resume what remains to be said respecting the Spanish navy.

The three divisions in Europe of the navy of Spain, are not the only places where ships of war are built. There are dock yards at the Havannah; and a fund of seven hundred thousand piastres was some time since established to carry on the works. At this station vessels are built at a more moderate cost also than in Europe.

Spain and her colonies might furnish her navy with all the ship-timber necessary for that service. In 1785 persons, competent to determine, were of opinion that her navy, by means of her colonies alone, might be augmented fifty sail, and at the same time, receive from it materials for the maintenance of the remainder. The resources which it possesses in Europe are as follow.

Andalusia, which formerly produced the best white oak, is now exhausted. Its forests yield not a sufficiency even for the repairs necessary in the department of Cadiz; the wood which they require for that purpose being brought thence from Italy, and sometimes cedar from the Havannah.

The department of Carthagena has no oak within its reach. The nearest to it are the forests of white oak in Catalonia.

The department of Ferrol is supplied from the mountains of Burgos, Navarre and the Asturias. But the forests of the former are greatly thinned. The two latter countries are well wooded, but the oak is of a bad quality.

This scarcity of wood in the metropolitan country, is principally owing to the thoughtless conduct of government, who about the year 1756, before roads had been made for the transport of them, caused trees to be felled sufficient for the construction of 122 ships of the line. No more could be brought to service at the time than was enough

* The Prince of Castel Franco before mentioned must be excepted, who has lately been deputed ambassador to Vienna; and the Marquis de la Grua, a Neapolitan, nephew of the Marquis of Branciforte, who after residing at the court of Sweden is at present an envoy at Parma.

for 50 vessels; part of the remainder, through neglect, rotted where they were fallen, and the remainder were stolen.

On the other hand, the colonies possess great resources; Cuba still contains a number of cedars in its interior, notwithstanding many people, judging from its coast, esteem it exhausted. Near the coast of Cumana, as well as there, grows plenty of wood fit for ship building. In 1776 it was in contemplation to fell some of the trees. The death of the minister of the navy, the Bailly d'Arriaga, caused the project to fail. How much are those governments to be pitied whose useful enterprises depend on the life of a single man.

Spain however lies still at the mercy of the powers of the north for her supply of masts. According to the account which the bank of St. Charles gave to the public in 1788, it appears that, from the first of December 1784 to the first of December 1785, upwards of eight millions and a half of rials were paid for masts alone.

Spain is still obliged to employ Dutch vessels. But she will be able to do without them, if the direct commerce she has for some years carried on in the Baltic continues to prosper.

She is still nearer to do without depending for her supply of hemp on foreign countries. For a long time the North supplied her with all that her navy required; latterly she has received a quantity furnished by Navarre, Arragon, and particularly by Grenada; so that almost all the navy is fitted out with Spanish hemp; the department of Carthage alone importing mostly from Italy that of which its cables are made. Our seamen, as well in the American war as in the course of the present year (1802), during their confinement at Cadiz, had sufficient means afforded them of appreciating the goodness of its quality.

Doubtless Spain has yet much to do towards perfecting her navy, but what advance towards it has she not made within this century! Under Philip IV. she purchased from the Dutch, vessels ready built, and the cordage necessary for her fleets and galleons; from the French her sail-cloths; copper from the Germans; tin and lead for the service of the artillery from the English; and galleys from the Genoese. She suffered her timber to rot upon the ground, and neglected the culture of hemp. Attentive to her mines of Mexico and Peru, which promoted her deterioration, she neglected her mines at home, whence she might have drawn her means of defence. The evil became still greater under the reign of Charles II. Spain was then like himself feeble and languishing. When her situation at this period is considered, one is surprised at the different state to which she has been raised by three succeeding sovereigns. Charles V., who left it in such full prosperity, would not know it for the same now, it is true; but his imbecile, his last descendant would still less recollect it again.

She at least possesses a navy which places her on a level with the different maritime powers. In the absence of war in Europe, her continual quarrels with the Barbary powers afford her frequent opportunities of exercising her sailors. But in these short and paltry wars, it is different for her officers to acquire any reputation. Barcelo, who from owner of a bark attained the highest posts in the navy, is almost the only one who has acquired any great reputation for these expeditions.

Of these regencies two in particular continually employ part of the forces of Spain as well naval as military: I mean Algiers and Morocco. Their naval power, it is true, is not very tremendous, and were it not for the supply of ammunition and naval stores afforded them by powers which possess a desire for commerce being respected, they would be almost destitute of the means of equipping their vessels. Among other importations from different states they obtain from Marseilles itself the timber for building their sloops.

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Some years back the navy of the Emperor of Morocco was reduced to 22 or 23 ships, good and indifferent, the largest of which mounted no more than 22 guns. But its army is respectable, at least as to number, since every subject of 12 years of age and upwards is a soldier. With this army, badly disciplined, and not over courageous, the Emperor has severally times unsuccessfully attempted to carry the fort of Metille belonging to the Spaniards, and situated at the eastern extremity of his dominions.

The Algerines are, or at least have been for a long time, an equally inveterate but much more formidable enemy. Five years ago they possessed 5 factories of from 24 to 34 guns, 3 xebecs of 10, 18, and 20 guns, 4 demi-gallies, and 3 galliots. With this force they were continually tormenting the Spaniards until 1784; when, the court of Madrid, losing all patience, and having concluded a peace with England, resolved upon attempting the destruction of this nest of pirates. She destined for this expedition a part of the naval stores and artillery intended for the projected attack, in union with us, upon Jamaica; which preparations were rendered useless by the peace of 1783. Algiers was bombarded by Admiral Barcelo for eight successive days. Nearly four hundred houses were damaged; but the buildings belonging to government remained nearly uninjured. The attacking squadron consisted of seventy sail, four of which were of the line, and six frigates. Algiers lost one gun-boat only; but this useless expedition cost the Spaniards 400 men and 1500lb. of gunpowder. The Algerines had to oppose them no more than 2 demi-gallies of 5 guns each, a felucca of 6, two xebecs of 4 guns each, and 6 gun-boats carrying a 12 and a 24 pounder.

The expedition of the succeeding year under the directions of the same Admiral Barcelo was still more fruitless, notwithstanding three other powers, Portugal, Naples, and Malta, each joined with part of their forces against the Algerines; the whole armament consisted of 130 sail. The Algerines defended themselves with 46 gun-boats, 4 bombs, three cariaffes armed, and three galliots. They lost three or four of their gun-boats, had 300 men wounded, but satisfied the combined fleet, that a still greater force was requisite to overcome them: and that this *nest of thieves*, if it merited the indignation of all commercial powers, did not at the same time deserve their scorn.

In the interval between these two expeditions, the anger of the government had so far cooled as to induce it to enter into negotiations for peace, which, jealous of our connections with Algiers, she took especial care to carry on without our knowledge. The treaty failed, and the second expedition took place. The Spanish minister had resolved upon repeating this attack annually, until the regency of Algiers, harrassed and exhausted, should at length be obliged to crouch to Spain. He however suffered himself, at the representations of the officers who had been engaged, to be dissuaded from this project; and negotiations with Algiers were renewed through the means of the Count d'Enpilly; they were followed up and concluded by M. de Mazaredo, who was sent to Algiers when the party undesirous of peace saw it about to be effected by a foreigner, and was inclined to ravish that honour from his hands. The Spanish negociator surpassed the expectations of his party, and little was wanting of his falling into disgrace for his too rapid progress. That these different negotiations were all carried on, unknown to us I will not presume to say, for that would have been difficult, but without any notice thereof to France. The Spanish government was more than suspicious that the trade of Marseilles had furnished the Algerines with their principal succour, and that not without the privity of the court of Versailles. However that may be, the gold of Spain made more impression on the barbarians, than what their bombs had done. Florida Blanca, who some months before had boastingly stated, and caused to be printed in the Madrid gazette, that "Spain would teach the other powers of Europe, by the ex-

ample she would give, to stoop no longer to be their tributaries ;” this minister, following the common routine, thought that he rendered his country a service in purchasing a peace of the regency of Algiers, at the price of 14 millions of rials. — Ah, M. de Florida Blanca, you presided over the Spanish monarchy for fifteen years. Your administration was not destitute either of splendor or good fortune ; you had an attachment to your country, which was closely allied to an hatred against all others ; you rendered it service, if not with a profundity of understanding, yet with loyalty and disinterestedness ; the grandeur of your sentiments caused the moroseness and irascibility of your temper to be overlooked ; you acquired a title to the esteem of every one by the magnanimity with which you supported disgrace, to which I myself have been witness, and which the cause I served obliged me to approve ; but you must allow, that your conduct with respect to Algiers was not among the wise or brilliant achievements of your administration.

Since the peace concluded in 1785, Spain has had other disputes with Algiers ; and, perceiving that the possession of Oran and Mazalquivir, situated on her shores, would ever be an inexhaustible source of quarrel, that as well they were no useful property, and that their position favoured desertion among her troops ; Oran as well having experienced two scourges at once, a siege by the Bey of Mascara, and an earthquake, which had reduced it to a heap of ruins ; Spain, at length, towards the end of 1791, determined on renouncing them both in favour of the Dey of Algiers, reserving to herself some commercial advantages.

Thus did these famous conquests of Cardinal Ximenes fall again under the dominion of barbarians. On the 26th of February 1792, six thousand five hundred men, which formed almost all the Spanish population, evacuated Oran, marched round the bay, and proceeded to Malzaquivir, whence they embarked for Carthage. Every thing was carried away in the sight of the Moors, who shortly after entered the place. Oran could never be defended but at a great expence, and was not of the slightest utility ; at least four thousand men were required to man its walls, and they were scarce sufficient ; there were four trenches in an amphitheatre, for the purpose of guarding a spring of water, without which the garrison could not subsist, and which the Moors had frequently attempted to cut off from it. Under these circumstances, Spain shewed her wisdom in abandoning both the places : she would have done well if, at the same time, she had given up her other stations on the coast of Africa which nothing but vain glory can induce her to retain, and which are only burthensome to her. She maintains there, particularly at Ceuta, several thousands of galley slaves, called *presidarios*. Of those who drag their chains after them naked, and covered with rags, there are from four to five thousand ; the rest who are not near so numerous, enjoy a degree of liberty, and go in search of labour. Both receive alike a very trifling allowance for their support ; and among this refuse of the human race are confounded together, to the disgrace of reason and equity, assassins, criminals of every description, smugglers, deserters, and other unfortunate beings, who expiate in this contagious society crimes of a much less heinous nature.

The navy it is which brought on this digression respecting the Barbary powers, and the presidencies of Africa. It as well naturally leads to commerce ; which cannot be maintained without it, and which feeds its protectress. It shall be the subject of the following chapter.

CHAP. VI.—*On the commerce of Spain in general.—Regulations respecting corn.—Interior trade.—Coasting trade.—Commerce in Europe.*

THE commerce of Spain has more branches possibly than that of any other country on the globe. It has immense regions to supply; possesses a great number, and a large quantity of territorial productions fit for distant exportation, some of which are much sought after, and some cannot be dispensed with. It acted a principal part at the time the Spanish monarchy shone in its splendor, and foreign merchants entered deeply into the interior to exchange their merchandize for the produce and manufactures of the country. Under the successes of Charles V. these golden days had flown, and Spain for a long time carried on no other than a passive and disadvantageous trade. At present, notwithstanding her agriculture and manufactures are far from being at their zenith, it may be safely affirmed, that if she had only herself to supply with such merchandize as she stands in need of, the value of her imports would certainly be at least equalled by that of her exports: so that the disadvantageous balance of trade against her, in her commerce with Europe, is wholly occasioned by her American possessions, and the necessity she lays under of obtaining from other states those articles which her own manufactures do not supply in greater abundance than what her home consumption requires; and such articles, natural or fabricated, as are not produced within herself, to answer the immense demand of her colonies. It is true this is compensated by the produce of her mines, which furnish her with means to answer the balance; whence it must be evident, that these colonies are not altogether so burthensome to Spain as some are apt to imagine; and the less so, from their presenting an incentive to agriculture and industry, in the certainty which they afford of a consumption, and a ready market for the increase of quantity, consequent upon enlarged exertions.

Many readers will possibly look upon this assertion as paradoxical. Fifty years ago it would have been erroneous. It is more than probable now that Spain appears to be awakened from her lethargy; and stands as a fact with those who have made the extent of her actual resources their study.

In the first place, she possesses all the necessaries of life in abundance. We have spoken of her wools, and her cloths, which, although at present not brought to perfection, are yet sufficient for clothing her population; and, when we treat of Valencia, we shall see what resources she derives from her silk. Her brandies, rich wines, fruits, barilla, soda, and oils, form a considerable branch of exportation from her eastern and southern coasts. She makes all the common wines necessary for the consumption of the kingdom; and agriculture, if more encouraged, would furnish corn sufficient for home consumption, leaving a surplus for exportation. Notwithstanding the present backward state of the country, some of the provinces, Andalusia and Old Castile for example, produce more corn than they can consume; but the difficulty of inland carriage renders this fertility almost useless to the rest of the kingdom. With few roads, not one navigable river, not one canal in full activity, carriage is necessarily very expensive, and very slow. It is well remembered at Madrid, even now, that about twenty-five years ago the capital, from some neglect, being in want of bread, and a sudden supply becoming absolutely requisite, the ministry were obliged to employ 30,000 beasts of burthen, in order to secure a receipt of 2500 fanegas* per day. Spain is therefore at times dependant upon foreigners for a supply of provisions, even when some of its dis-

* Five fanegas make a quarter of wheat.

tricts enjoy a superfluity. But, notwithstanding the cry of scarcity, she never needs more than a thirtieth part above her produce. Of this I subjoin a proof.

Her whole consumption may be computed at 60,000,000 fanegas; at least the following calculation will make this computation plausible.

Sixty million fanegas, if the fanega be esteemed to weigh 90lbs., will give 5,400,000,000 pounds of wheat, which, divided by the population 10,500,000, will give for each individual 52cbs. nearly, or less than a pound and a half per day. This statement may be considered as not affording a sufficiency, by nations which, like the French, reckon that each individual will consume two pounds of bread per day, but a different opinion will be formed, if it be considered that, first, the fanega most frequently weighs more than 90lbs.; secondly, that the population is scarcely ten and a half millions; thirdly, that maize is used both mixed with wheat and by itself in many parts of Spain; and, fourthly, that Spaniards are not near so voracious as the French of the article of bread; so that the consumption of the country will be rather overrated than otherwise at 60,000,000 of fanegas.

On the other hand, the forty ship loads at most which she imports can yield no more than 2,000,000 of fanegas; yet this quantity is sufficient for her momentary necessities, which a false panic has exaggerated. Hence Spain, were she left entirely to herself, could not experience a famine. What nation could not upon emergency, without any great effort, diminish her common consumption a thirtieth part? After what occurred in France in 1794 and 1795 this cannot be doubted.

Nevertheless, upon the most slight appearance of dearth in Spain as well as in other countries, no other remedy is thought of than a prohibition of exportation; a measure at least useless, and frequently disastrous, on account of its depriving fertile provinces of a certain market, which ought rather to meet with encouragement to induce them to combat successfully the obstacles resulting from peculiar position.

There is yet no permanent law respecting the commerce of grain. Up to the reign of Charles III. its exportation was almost uninterruptedly prohibited, and its price was established at a fixed rate. The inconvenience of this restriction was at length discovered, and M. de Campomanes, who was then fiscal of the Council of Castile, caused it to be abrogated. In 1765 it was established by a royal mandate, that the interior commerce of grain should be absolutely free; that it should be permitted to store it in public magazines, whence, to supply pressing necessities, it might be taken at the current price; that leave should be granted to take grain from the magazines, when, after three successive markets, it should have continued at a certain price; that corn from abroad might be introduced and stored in magazines within the country as far as six leagues from the sea, &c. This regulation shortly after experienced some modifications. The exportation of grain was even entirely prohibited in 1769; but the regulation of 1765 was wholly re-established in 1783.

These variations must naturally tend to increase the timidity and indolence of cultivators. To encourage them to derive all possible advantages from their lands, a more permanent law is necessary, one better observed. For that which permits exportation is incessantly eluded by the caprice or avarice of the alcaldes and governors of the frontiers; and when nothing prevents its application there are still many formalities to go through before the exportation can take place. Exportation is therefore rare, and carried on but to a trifling degree in the manner authorized by the law. The slowness and expence of carriage in Spain, is an insurmountable obstacle to the smuggling of that quantity of corn from the kingdom which is supposed to leave it illegally. On the other hand, it is well ascertained, that grain finds its way into Spain by different channels; Gal-

licia

licia and Asturia frequently receive corn from abroad, although the people there consume a great deal of maize; Biscay takes some from the province of Alava, from Navarre and Arragon, and sometimes from foreign nations, by the way of St. Sebastian; all the eastern coast of Spain is in continual want of supply; the kingdom of Valencia receives it from abroad, when La Mancha, in which corn almost constantly abounds, cannot furnish it with a sufficient quantity; and, lastly, Andalusia, notwithstanding its fertility, receives grain from other countries by means of its ports of Cadiz and Malaga*. The exportation of grain cannot take place with advantage, except by the frontiers of Portugal. This kingdom seldom reaps enough for its own consumption, and the neighbouring Spanish provinces have frequently a superabundance.

There is no considerable excess of corn in any province of Spain, except in Old Castile, and this is sent to St. Andero and some neighbouring ports in Galicia, Asturia, Andalusia, and even to France, as happened in 1782 and 1783. However exportation is greatly in opposition from the rooted prejudices of Old Castile, which however ought not to weigh against experience; since the regulation of 1765 was justified by an increase of almost a third in the produce.

About the same time, a measure was adopted for the encouragement of agriculture, by instituting the *Positos*. These are magazines of corn, established in upwards of five thousand cities, towns, and villages in the kingdom, to insure subsistence to the people against all accidents, and to prevent the alarms which in these delicate matters are often equivalent to real evils. When it is intended to establish one of these *positos* in any place, the municipal corps (*ayuntamiento*) obliges every inhabitant who has a field, either in fee or at a quit-rent, to contribute thereto a certain number of *fanegas*. The year following the inhabitant takes back what he has furnished, and substitutes for it somewhat more; and thus in the following years, until the whole of the different increased quantities deposited, which are called *crucos*, has sufficiently filled the magazine. But this period is retarded at the will of avarice, and there are few *positos* in Spain, the management of which does not enrich the administrators at the expence of the poorer classes of the people. However, for some years back great pains have been taken to remedy these abuses, and establish the *positos* according to their original destination, that they may tend to the encouragement of cultivators, and, if possible, a part of the increase be applied to the assistance of those who may be in want of grain for sowing their lands†. Besides these public magazines there are the magazines of corn established in several places, by charitable individuals, for furnishing poor husbandmen with the means of sowing their lands. There are likewise at Valencia and Malaga other beneficent establishments whose object is the encouragement of agriculture. These are named *erarios*, and consist of funds destined to make advances in money to labourers, for a year only. These funds were taken from the produce of the *spolios y vacantes*‡.

But all these aids, all these palliatives, which rather demonstrate good will than intelligence, are insufficient for the vivification of agriculture. Its languor is the result of a ra-

* Valencia imports the grain requisite for its consumption mostly from Italy and Barbary. What it receives from La Mancha is at a higher price, on account of there being no other mode of transporting it but by mules; in peace it is not so dear as in war, on account of the muleteers resorting more to Valencia for salt cod, which is an almost indispensable aliment in their country; in war time they have no back carriage; add to this, it frequently happens that the harvests in La Mancha fail from droughts, on this account Valencia has no safe dependance on this country for its reply.

† This resource of poor farmers was dried up during the last war; the King having seized upon the *positos* to provision the army, promising restoration at a more propitious period of this spoliation, to which he was driven by circumstances.

‡ But they are particularly of late very badly managed.

dical evil, which will not be exterminated even when all the modes of facilitating communication shall become established. In Spain, individual properties are too considerable, the country too little peopled, and a number of circumstances tend to discourage the cultivators. The mention of one will be sufficient. The privileges of the *mesa*, which extend to the proprietor whose sheep are fed on his own grounds, obliges him to leave his fields open in all seasons; so that from the instant the grain is sowed to the period of his sowing again, his lands belong less to himself than to the public*.

Were agriculture more encouraged, what a source of wealth would it not be for Spain! Nothing can surpass the natural fertility of many of its provinces. Its grain is of the finest quality. Wheat is reaped among them which, passing through the mill, loses no more than 5 per cent. by conversion into flour, while northern wheats lose 15 per cent. Hence arises a notable difference in the estimation and price of the two descriptions of wheat. The wheats of Andalusia have been known to fetch double the price at Seville which foreign wheats have been sold for at Cadiz.

Waiting until government shall give life to the interior of Spain by establishing roads and canals, its commerce chiefly consists in wine and oil, which are carried in leathern bottles by mules or asses from one province to another; in grain, of which, in like manner by the aid of beasts of burden, the superfluity of one district is transferred to another; and particularly in wool sent from the sheep-folds and washing-places of the two Castiles to the ports of the northern coast. Materials for the manufactories and merchandize which pass from the ports or frontiers into the interior parts of the kingdom, are transported thither by the same expensive conveyance.

Spain is not much farther advanced in the coasting trade. Excepting the vessels of Catalonia and those of Biscay, the carrying trade along the coast is almost wholly in the hands of the French, Dutch, and English; three nations which have the advantage of being more active, and who understand how to navigate their vessels at a less expence and with fewer hands than the Spaniards. What has hitherto obliged Spain to employ a greater number of sailors, is the state of perpetual war she is in against the Moors of Barbary, which has besides the inconvenience of diminishing the confidence in her flag. Its government has however recently felt the necessity of obviating this principal obstacle to the prosperity of her navigation in the Mediterranean Sea.

But it is more particularly in foreign commerce that Spain acts but a passive part. I shall soon convince my readers of this by taking a view of the coasts.

In the first place, those of Catalonia are an exception. But few of the reproaches alledged against the Spaniards are applicable to the Catalans. The port of Barcelona exports its silks, middling cloths, and cotonades, its indianas, wines, brandies, and other productions; and if we wish to form an opinion of the part the Catalans take in this trade, we must attend to the circumstance, that in 1682, of six hundred and twenty-eight vessels which entered Barcelona, three hundred and seventeen belonged to Spain. It is true, silks from Lyons, stockings from Nîmes, several kinds of stuffs and cottons, in spite of the prohibition, and particularly dried col, an article for which Spain is yet tributary to the English in the sum of 3,000,000 of piastres annually, pass into Catalonia by the same port.

* The impediments to agriculture are exposed in a very luminous manner by *Don Gaspard Melepie de Jovellanos*, in a piece which forms part of the volume of *Memoirs* published by the Patriotic Society of Madrid in 1796. The remedies are indicated therein, as well as the evils themselves; but the good wishes of a citizen, equally estimable for his zeal as his talents, trench upon the interests of so many as to afford no prospect of any speedy completion.

Remarkable singularity in the history of commerce ! that a Protestant nation should furnish a Catholic kingdom with an article, which that nation only can prepare according to the taste of the consumers, by fetching from their own coasts * the salt necessary to cure the fish taken upon the banks of Newfoundland, an island discovered by the Spaniards ; and as if this species of servitude were irrevocably decreed by fate, all the attempts hitherto made to substitute fish taken on the coasts of Biscay and Asturia resembling English cod have been ineffectual ; and have proved that laws, policy, and even interest disappear before the caprices of taste †.

The other ports of Catalonia are much in the same situation as that of Barcelona. Tarragona, and the neighbouring ports receive in addition some articles of necessity, and export dry fruits. Tortosa exports or imports wheat, according as the harvests of Aragon and Catalonia are good or bad ; but the principal article of exportation from this port is pot-ash.

A considerable commerce is also carried on in the ports upon the coast of Valencia, and chiefly with France. The French send to Valencia linens, woollens, hardware, spiceries, and grain, to almost as great an amount as the wines, wool, dried fruits, pot-ash, and barilla, which they take from thence. They fetch from Gandia the wool used by the manufacturers of Languedoc and Elbeuf, and carry with them French cloths, silks, linens, hardware, &c. The English also carry thither their cloths, and the Dutch ship from thence the brandies of the country. Alicant has been, up to the present time, the most commercial city in Spain, and its port that most frequented by national bottoms. Of nine hundred and sixty-one ships which entered it in 1782, six hundred were Spanish, and most of them Catalans ‡. The abundant production of its neighbourhood of wines, brandy, almonds, aniseed, cordage, salt, saffron, &c., with about five thousand tons of barilla, of which four-fifths is exported by the French, and the remainder by the English ; these productions are exported to foreign countries from Alicant in greater abundance than from any other Spanish port. Its port, a large and safe roadstead but not deep, is a depôt for all merchandize coming from Mediterranean ports designed for Spain.

Alicant suffered considerably in the last war with England ; its port was little frequented unless by neutrals, who came to take in ladings of the productions of the country. In enumerating the objects of exportation from this city, a species of cochineal, known under the name of *grana*, must not be omitted, which is used with nearly the same advantage as that of America, although inferior. It is a mass of small colouring insects sufficiently resembling those of the real cochineal. They are collected upon the oak tree (roble), which abounds in the neighbourhood of Buffots near to Alicant.

The salt which bears the name of this town is not properly speaking a production of its territory. It is collected from two ponds in the neighbourhood of each other, but which have no communication with the sea ; they are called *La Mata* and *Torre Vecchia*,

* The salt with which the English salt their cod is brought from St Ubes and Alicant : whither their ships sometimes come in ballast to load with salt, thence to proceed to Newfoundland.

† The consumption of English cod was greatly diminished during the last war, although neutral vessels brought quantities to Spain under the title of French cod ; the Baccalar of Norway has been substituted for English cod in different parts of the kingdom, particularly at Barcelona, where it is preferred, but in almost every other part of Spain, although not so good as the bacalar, there is a marked predilection in favour of English cod.

‡ In the years immediately following this port was not frequented by near so many national ships. The two last wars have every where suspended the activity of the Spanish navy. But in one year as many as eight hundred Swedes had arrived there. The custom-house of Alicant is consequently the most productive one the monarchy can boast.

and are to be seen half way between Alicant and Carthagera. The simple evaporation excited by a burning sun covers their surface with a foam, which is gathered in the month of August during dry weather; early rains, however, sometimes ruin the harvest. The ponds of La Mata and Torre Vecchia are two sources of salt almost inexhaustible, and sufficient of themselves to furnish the whole of Europe with that commodity. Their annual produce, which is from twenty to forty million pounds, is carried to Alicant, where the nations of the North come to fetch it, particularly the English, to whom it is absolutely necessary for salting their fish, and the Swedes, who annually import 30,000 casks of 3 cwt. each.

The wines of Alicant are of different descriptions. The principal and the only one much known out of Spain is a rich red wine, called *Tent*. Besides this they have one, but of which very little is made, that is white and of muscadine flavour; and another called d'Aloque, a common wine, some of which is exported to the neighbouring provinces, to Cadiz and to Gibraltar. Their red sweet wines, which, when young, are of a very deep red colour, are sometimes imported into France for Bourdeaux, where they are employed in giving body and colour to claret.

Almost all the wines called Alicant are made in the neighbourhood of that town. The vineyards begin at about half a league from it, in a canton known by the name of *Huerta de Alicant*, which owes its surprising fertility to a neighbouring pond, whose water serves for its irrigation. This pond, which belongs to the King, is surrounded with a wall sixty feet high, and wide enough for three carriages to drive abreast upon it, is a remnant of the labours of the Moors, who, in every part of Spain, left traces of their industry.

To Carthagera the English, Dutch, and Neapolitans carry merchandize of all kinds, and return loaded with silk, wool, cordage, pot-ash, and barilla.

Almeria is a small port, the principal commerce of which is in the hands of the French, whose ships carry thither the productions of their manufactures, and return loaded with lead, pot-ash, &c.

Wine and fruits are exported from Velez Malaga, and Marbella, mostly in foreign bottoms.

Malaga has a very considerable commerce, the advantage of which is entirely in favour of Spain, but with little profit to its navigation. The English, who are in possession of the greatest part of the trade, carry thither woollens and great quantities of hardware; the Germans linen, the Dutch spice, cutlery, laces, &c. These nations, those of the North, and Italy, export to the amount of two millions and a half of piastres in wines, fruits, sumach, pickled anchovies, oil, &c., and all they carry thither amounts only to about a million and a half. The Spaniards themselves take so little interest in the shipping, which a similar extent of commerce must require, that in 1792, of the crowd of vessels which entered and sailed from Malaga, scarcely sixty were national.

Cadiz, the commerce of which I shall speak of at some length in another place, is a striking proof of the inactivity of Spanish navigation. Scarcely a tenth of the vessels which enter there belong to Spain. Latterly, however, the Spaniards have increased in activity at this port more than any other of Spain.

The neighbouring little ports of St. Lucar and St. Mary are in miniature what Cadiz is at length.

If we pass from the coasts of Andalusia to the northern coast of Spain, we shall find the French, English, and Dutch in possession of the trade from Vigo, Ferrol, and particularly from Corunna, which mostly consists in importation; for the pilchards, cattle, and common linens, the only articles Galicia has to spare, serve to pay the balance due

to the neighbouring provinces. Corunna owes to the reign of Charles III. a trifling exportation trade, which it has to America by the packet-boats that sail every month for the Havannah, and every two months for Buenos-Ayres. These were eighteen in number, when the war of 1779 began. Several fell into the hands of the enemy, but were afterwards replaced. The conveyance of packets and passengers is the principal object of their institution; but it occasionally furnishes the means of exportation to the productions of Gallicia. They employ about a thousand sailors, and enliven the circumjacent countries. At this instant there is at Corunna for their periodical communication five merchant frigates instead of eight, which there were in 1796; one of three hundred and ninety tons, and four of a hundred and twenty; three brigantines and a corvette. It is as well assisted by four vessels of from eighty to a hundred tons, and two golettas from Porto Rico.

During the war which Spain waged against France in conjunction with the English, she established a provisional courier once a week for Falmouth, by which means she obtained a rapid communication with all the north.

Upon the coast of Asturias there are eighteen ports scarcely known to have a name, the trade of which is almost exclusively in the hands of the Dutch. A little before the American war the English and French, who had been driven from them for some years, appeared there again with linens, woollens, and small ware. Some vessels from the country however sail to France and England in search of what is necessary to supply the wants of the province; and since the establishment of a free commerce with America, the trade of Gijon, the most important of these ports, begins to acquire some activity.

The country adjacent to the Asturias is called the *Montanas de Burgos*; and is one of the districts of Spain the most unprovided with resources. Government, considering this, permitted that district to receive the necessaries of life duty-free. The treasury was not long before it repented of the concession, under favour of which all sorts of foreign merchandize being introduced by the ports of this coast, administration has recently taken measures to prevent future abuses. Hence acts of rigour, and even of malevolence have been put in practice against foreigners, particularly the French, of all the people of Europe, that which before the rupture between the two powers seemed to enjoy in respect of this trade the most exclusive privileges.

Saint Andero is the principal of these ports; it receives by about a hundred French vessels from their western ports, every thing which they can furnish for its consumption. These ships return loaded with wool for the manufactures of France, and corn for the other Spanish provinces, and some times for those of their own kingdom. The English export from Saint Andero the same articles, in exchange for cod, oil, fish, &c. and employ, in this commerce, about forty vessels. Some Dutch and Hamburg vessels trade thither also. The establishment of a free commerce has begun there to animate the national navigation. The neighbouring ports, such as those of *Suances*, *Comillas*, and *St. Vincent de la Barquera* carry on a little coasting trade with the barks of the country. *Santona*, which has an excellent port, sends some vessels loaded with chestnuts to Holland, and a few cargoes of lemons to France.

Their coast, the trade of which, as we have seen, is almost wholly in the hands of foreigners, joins that of Biscay, which carries on the most active commerce in Spain after that of Catalonia.

The principal ports of Biscay, Bilboa, the Passage, and St. Sebastian, are much frequented by the English, French, and Dutch, who carry thither their manufactures, and return with iron, wool, and anchors. The Biscayners, in their own ships, maintain a regular trade with different ports of Spain, as well as with France, England, and Holland.

A few

A few words upon the trade of the Mediterranean islands, which make a part of the crown of Arragon, will complete this slight sketch of the commerce of Spain.

The island of Majorca, the principal one of the three, although its population be no more than twenty-four thousand four hundred souls, produces wine, and fruit, oranges, almonds, and oil, which are sent to Spain, some brandies, taken by vessels from the north, a little silk which goes to Catalonia, and coarse wools sent to Sardinia and Italy, with inlaid work, for which the Majorcans are famous. It receives corn from the French and Italian ports, cattle from those of Languedoc and Catalonia, and rice and silks from the coasts of the kingdom of Valencia. The English, the Dutch, and particularly the French and Genoese, carry to it all the other articles of which it has need. The people of Majorca, like the inhabitants of most islands, have an inclination and aptitude for navigation. Their dock-yard is at Palma, which is their principal port; they fetch cocoa, sugar, iron, and planks from Marseilles; and their xebecks go to Cadiz, where they take in cargoes. Their spirit of adventure would greatly increase were it not for their apprehension from the Barbary corsairs. It has received a new stimulus, by the establishment of a free trade to America.

Minorca, unfruitful and almost without industry, was furnished with every thing by foreign vessels, and particularly by those of France before it was conquered by Spain. I know not whether the change will be advantageous to the inhabitants with respect to their commerce or not, perhaps they would have been better pleased if the treat of Amiens had left them subject to their former sovereign.

Iviza, the third of the islands anciently called the Balearic, exports but little, and receives its supplies of necessaries from Majorca and the coasts of Spain. Its principal riches consist in salt, of which foreign ships, particularly Swedish, come thither to take in their cargoes.

These accounts are more than sufficient to prove that the commerce the Spaniards have with foreigners is but passive. The extension of the free commerce with Spanish America however has already had an effect, and will, no doubt, operate advantageously for their shipping interest. This will be sufficiently explained in the following chapter.

CHAP. VII.—*Of the trade between Spain and her colonies. — The establishment of a free commerce. — Administration of Galvez.*

AFTER the conquest of Spanish America, the court of Madrid confided the administration of that country to a permanent council, under the name of the *Council of the Indies*, which still subsists, with nearly the same laws and principles, that, according to circumstances, were at first adopted. The organization which it established for its vast possessions forms no part of my subject: I shall say no more of it than what will be necessary to give a proper knowledge of modern Spain, with respect to her connexions with her colonies.

The *Council of the Indies* is, like the Council of Castile, composed of several chambers, two of which are especially charged with affairs of administration, and the third with the decision of lawsuits. It has also its *camera*, which proposes to the King, by means of his minister, such persons as it judges proper to fill places in Spanish America. It is by this council also that the laws and regulations by which that country is governed are framed. This having been the permanent depository of the fundamental laws upon which its constitution was at first erected, it has been a constant enemy to all change.

One of these laws confined the commerce of Spain with her colonies, to a single port: at first that of Seville; but when the Guadalquivir, which in the time of Charles V. was

navigable up to this port, became inaccessible to large vessels, the centre of the Spanish American commerce was removed to Cadiz. The manner in which it was carried on is generally known. It will not be necessary to repeat here what is known to every one, that at stated times a fleet sailed to Mexico to furnish a supply of such articles as it required, and bring back its productions to Cadiz, while, at the same time, galleons sailed for Porto Bello. It will be sufficient to remark, that this method continued to be practised until the war which begun in 1732, when register ships were substituted for galleons, which no longer sailed at any fixed time. But the fleet for Mexico, and the register ships, continued to sail from Cadiz.

In the mean time, the coast of Caracas received its supply of merchandize from other quarters. The care of furnishing it was deputed by Philip V. to the company of Guipuscoa, which we have noticed before, and which enjoyed the advantage of an exclusive privilege, without having received it in form.

Bad administration, which, while it enriched the agents, excited complaints from the settlers at Caracas. occasioned it to decline. The injury it received at the beginning of the American war, and which amounts in loss to 1,500,000 pialtres, gave it the finishing stroke; the company then felt the burthen too heavy to be supported, and prayed the King to be dispensed from their obligation of maintaining, with little avail, certain guarda costas, which were an annual expence to them of 200,000 pialtres. This prayer was granted, and the company has preserved the same means for carrying on trade with the Caracas that its competitors enjoy at present, but with superior facilities.

The experiment made by Philip V. in favour of the settlers of the Caracas was a step towards new attempts of the same kind. In 1755 Ferdinand VI. permitted a company of merchants at Barcelona to send out ships to St. Domingo, Porto Rico, and Margarretta; but the privilege was clogged with so many restrictions that the company made no use of it.

In 1763, the dawn of a new day began to illumine Spanish America. Already had certain intelligent persons repeatedly represented to government the inconvenience of confining to a single port, and to periodical voyages, the whole commerce of these extensive colonies. But two unfavourable experiments, made at different periods, had made it timid. Under Charles V. there had been an attempt to establish a free trade, but soon afterwards it was found necessary to restore the former restrictions. From 1748 to 1754, register ships had sailed from different ports of Spain besides Cadiz; and the numerous failures which followed in consequence soon caused the measure to be abandoned. These objections were answered by observing, that precautions and regulations better adapted to the time and the nature of the different expeditions, must prevent the ruinous speculations of new adventurers; that Spanish America, better known by its wants than its resources, no longer presented the same risks to merchants; and that the old plan on one hand exposed the colonists to all the hardships of monopoly, and on the other, left too great an opening to the speculation of smugglers.

A tariff drawn up in 1720, seemed to have been calculated for the advantage of those who pursued this illicit trade. It loaded with export duties the productions of the mother country. It established the ridiculous duty of *Palmeo*, which was received upon the bales, not according to the quality of the merchandize, but in proportion to their dimensions; a duty which rendered it impossible to take any account of the quantity or quality of foreign stuffs shipped for the colonies. In a word, it prescribed a number of formalities perplexing to legal commerce; and smuggling added to the advantage of eluding them, that of defrauding government of duties on exportation and importation to the amount of 70 per cent. The English profited by this so much, that, according

to calculations which I have reason to believe exact, their contraband trade produced them after the peace of 1763 twenty millions of pialtres per annum.

At length the court of Spain opened its eyes; but frequently circumspect even to excess, and prudent even to tardiness, it as yet was satisfied with trying a new regime for a part of its colonies. By a decree of the 16th of October 1783, several European ports were permitted to trade immediately with the Spanish *Caribbees*, and the provinces of *Campeachy*, *St. Martha*, and *Rio de la Hacha*. The decree diminished the duties of the tariff of 1720, and dispensed with many formalities.

The Spaniards were not at first eager to begin this new traffic; the island of Cuba became the principal object of their timid adventures. Yet in 1770 this island, which, well cultivated, might supply all Europe with sugar, did not furnish enough for the consumption of Spain. Merchants have since become more enterprising. Government has given new encouragement to the trade with the Havannah, especially in facilitating the importation of negroes, by a considerable diminution of the duty on their importation. The company which had the exclusive privilege of furnishing them, had almost ruined itself in the undertaking; but these new measures soon gave it the means of repairing its losses. The island of Cuba began from that moment to prosper visibly. Before the year 1765, scarcely six ships in a year arrived at its ports; in 1778, its commerce gave employment to upwards of two hundred, and its crops of sugar were more than sufficient to supply the demands of Spain.

At that time Galvez had enjoyed the post of minister for the Indies scarcely two years; he was of a stern and despotic character, but neither deficient of courage nor intelligence. He had travelled through a great part of Spanish America, was acquainted with the disposition, the wishes, the necessities, and the resources of its inhabitants. He thought this season fit for their liberation from the most galling of their fetters, and for the extension to almost all of them of the advantages of a free trade.

By a decree of the 2d of February 1778, this was extended to the province of Buenos Ayres, and the kingdoms of Chili and Peru; and by another decree, on the 16th of October following, to the vice-royalty of Santa Fé, and the province of Guatimala. It therefore was now permitted to all Spanish America, except Mexico.

The last decree admitted to a participation in a free trade the ports of Seville, Cadiz, Malaga, Almeria, Alicant, Carthagena, Tortosa, Barcelona, St. Andero, Gijon, Corunna, Palma, in the island of Majorca, and St. Croix, in Teneriffe. The Biscayans alone, on account of their aversion to custom-houses, as we have before noticed, were exempted from a direct participation of these advantages*.

The same regulation extended this commerce to four-and-twenty ports in America, and favoured, by an abatement of the duties paid at others, such ports as required this allowance to cause them to be frequented. One of the principal objects of its author, was to encourage the productions of the mother country. In consequence of which, several articles were exempted from duties for ten years from the date of the decree; such as woollens, cotton, and linens of the manufacture of Spain, hats, steel, glass, &c.

With the same view the regulation actually excluded many articles of foreign merchandize, such as cotton stuffs, half-beaver hats, silk stockings, and liquors of all kinds, such as wine, oil, brandy, and others, known in Spain by the appellation of *caldos*. And further to excite the Spaniards to export to the Indies the productions of their own

* During the present war, the Prince of the Peace, by entirely changing the constitution of Biscay, and assimilating it with that of the other states subject to the crown, at least as far as regards import and export duties, has obviated the motive which caused the restriction to which the Biscayans were subjected. They at present (1807), in common with the rest of Spain, are allowed to traffic with the Spanish colonies direct.

country, the regulation exempted from a third of the duty every vessel wholly laden with national merchandize; and exempted entirely from duty, on being shipped from America, a great quantity of the productions of the country; such as cotton, sugar, cochineal, indigo, coffee, copper, jesuits-bark, and all productions, as well of the Spanish Indies as of the Philippines, which had hitherto not been brought to Europe; a long list of benefits promised by the new world to the old, the enumeration and appreciation of which might perhaps decide the grand question, whether the discovery of America has been most beneficial or injurious to mankind. What compensation (if there can be compensation) for some terrible presents she has made us! What number of different woods, minerals, fruits, and nutritive aliments! How many salutary balsams, shrubs, flowers, and medicinal plants! How many articles, in short, calculated to increase our enjoyment, and lessen our ills, and consequently to afford man that small portion of happiness of which he is susceptible on earth! Wherefore do they who possess these treasures retail them with a niggard hand; wherefore load them with forms and taxes? as if fate had irrevocably decreed that evil should pour down in torrents, and good but drop by drop.

The precious metals of America, which it might be difficult to class in either rank, made a separate article in the regulation of 1778. Gold, on entering Spain, paid before a duty of five per cent., and silver one of ten per cent. The new regulation fixed these duties at two and a half and five per cent.

Certain articles of merchandize coming from the Indies are necessary to the Spaniards, either for their consumption or for their manufactures. The exportation of these to foreign kingdoms is absolutely prohibited by the regulation: the principal of this description are silver in ingots, gold in every form, spun cotton, ship timber, &c.

America produces many other articles little known in Europe, and of which Spain ought to promote the exportation. And the regulation which exempts them from export duties on leaving the Indies, extends the exemption to their exportation from Spain; such are certain woods, gums, plants, and drugs with which America abounds; and which, placed by nature at a distance from the inhabitants of the old continent, ought long since to have been rendered common in Europe.

All these measures would have been insufficient, if the court of Madrid had suffered the numerous duties established by the tariff of 1720 to remain.

The new regulation abolishes them all, and substitutes in their stead a single duty, which is a certain part of their value. It is accompanied by a tariff, in which the various articles of merchandize are estimated; iron by weight, cloths by measure, stuffs by the piece, and other articles by the dozen. Those which cannot be thus valued, are taken at the current price of the manufactories whence they come, if they be Spanish; or at the invoice price from the port in which they were shipped, if foreign. According to these different valuations, which leave but little room for arbitrary decisions, the tariff subjects all national merchandize to a duty of three per cent., and foreign goods to one or seven per cent., when either are shipped for any one of the great ports of America; that is to say, the *Havannah*, *Carthagena*, *Buenos Ayres*, *Montevideo*, *Callao*, *Arica*, *Guyaquil*, *Valparaiso*, and *Conception*; and the duty is but one and a half, or four per cent., when national or foreign merchandize is shipped for any of the lesser Indian ports.

Notwithstanding the wisdom shewn in the construction of the regulation, it excited many complaints. It left, said the complainants, much to be desired with respect to the encouragement meant to be given to national productions. Why were articles of foreign manufacture excluded from the commerce of America, the demand for which the na-

tional manufactories could not for a long time to come sufficiently answer, particularly in the article of silk stockings? Was not this an inducement for the merchants of Spain, convinced of the inability of obtaining enough from their own manufacturers, to engage with foreigners for a supply? And must not this necessary succour, easy to be obtained in spite of prohibitions, cause their manufactories to languish by favouring idleness? The heaviest complaint was against the troublesome formalities to which the regulation subjected the expeditions from the ports of Spain to America. Merchants were exposed to the caprices of favour and the inconvenience of delay; which, added to a duty of seven per cent. to be eluded as well in exports as imports, and to absolute prohibitions of certain articles of merchandize, could not but offer seducing advantages to contraband speculations. Could the name of a *free* trade, said the complainants, be given to commerce thus shackled, for each operation of which an express permission was necessary from the minister; which intrigue, unwillingness, the slowness of the forms of office and intermediate agents, might delay too long, and consequently render useless? Instead of the advantages of liberty, prohibitions, threats, and punishments, it was added, had been annexed to each article of the regulation.

The merchants of Cadiz were the chief complainants. These only had hitherto had connexions with Spanish America; they were the only persons who had capitals sufficient for such distant expeditions, of which the long delayed returns were exposed to every kind of hazard. The associates given them in thirteen other ports of Spain, would, said they, engage in ruinous speculations, which, without benefiting the colonies, would be a real loss to the commerce of Cadiz.

The voice of self-interest was easily distinguished in these complaints. The experience of a few years has already been sufficient to determine how groundless they were.

The following tables present a view of the effect of the regulation, even in the first year, on seven of the principal ports of Spain, the only ones which at first dared to take part in the trade thrown open to them :

Number of Vessels and Places whence they sailed.		Amount of		Amount of	Amount of	
		National Goods.		Foreign Goods.	Duties thereon.	
		Rials.		Rials.	Rials.	Mar.
63 from Cadiz	-	13,308,060	-	36,901,940	-	2,677,060
25 — Corunna	-	2,787,671	-	2,673,056	-	287,397 30
23 — Barcelona	-	6,531,635	-	2,100,526	-	335,360 14
34 — Malaga	-	3,425,504	-	519,085	-	144,739 24
13 — St. Andero	-	765,155	-	3,991,395	-	306,482 18
3 — Alicant	-	211,969	-	92,340	-	12,948 10
9 — Santa Cruz	-	1,606,625	-	-	-	69,435 23
<hr/> 170 Ships. Total		<hr/> 28,636,619	-	<hr/> 46,278,342	-	<hr/> 3,833,424 17

Vessels which returned from Spanish America in 1778.

To which Ports.	No. of Vessels.	Value of Merchandize.		Duties on Entry.	
		Rials.	Marav.	Rials.	Mar.
Cadiz - - -	57 -	34,410,285	13 -	975,534	8
Corunna - - -	21 -	27,333,132	10 -	1,725,460	6
Barcelona - - -	25 -	4,308,551	3 -	77,271	26
Malaga - - -	10 -	989,829	8 -	4,790	20
St. Andero - - -	8 -	4,594,099	-	33,602	30
Alicant - - -	8 -	1,195,827	7 -	0	0
Santa Cruz de Teneriffa - - -	6 -	1,726,568	12 -	111,197	16
	<u>135</u>	<u>74,558,292</u>	<u>19</u>	<u>2,927,857</u>	<u>4</u>

Ten years afterwards this commerce experienced a prodigious increase. Twelve ports in Spain, instead of seven, engaged in it. The exportation of national merchandize was more than in a quintuple degree; that of foreign more than triple; and the amount of the importations from America more than ten times greater than in 1778.

It is by a comparison between similar tables, better than by any reasoning, that one is led to judge of the progress of prosperity in any nation. The reader himself may compare the year 1778 with that of 1788.

Table of the Trade with Spanish America in 1788.

Names of the Ports.	Value of National Merchandize.		Value of Foreign Merchandize.		Value of the Returns from America.	
	Rials.		Rials.		Rials.	
Seville - - -	3,811,039	-	573,688	-	129,970	-
Cadiz - - -	91,252,427	-	121,533,827	-	635,315,832	-
Malaga - - -	12,752,045	-	1,347,354	-	11,869,524	-
Barcelona - - -	29,688,392	-	2,083,317	-	35,446,496	-
Corunna - - -	9,993,537	-	-	-	81,625,588	-
St. Sebastian - - -	364,547	-	3,179,534	-	11,355,430	-
Los Alfalgués de Tortosa - - -	864,384	-	14,404	-	245,235	-
St. Andero - - -	5,082,866	-	11,277,950	-	24,295,925	-
Gijon - - -	61,775	-	1,131,992	-	642,091	-
Alicant - - -	542,576	-	32,600	-	635,110	-
Palma - - -	598,875	-	-	-	274,095	-
Canaries - - -	2,210,576	-	1,319,624	-	2,863,437	-
	<u>157,223,039</u>		<u>142,494,290</u>		<u>804,698,733</u>	

From this exposition it appears, that in 1778 goods were shipped for Spanish America to the amount (national and foreign included) of	Rials.
- - - - -	300,717,529
And that the returns to Europe amounted to	804,698,733
And thus that the returns exceeded the shipments from Spain by	503,981,204

What better evidence can the Spaniards, can foreigners even require of the advantages of her trade with America? Will it be denied, after inspection of these different tables, that the regulation of 1788, however imperfect it may be, has yet contributed towards the vivification of the Spanish colonies? Even the revenue has been materially benefited by it.

In 1778, the total amount of the duties on exportation and importation amounted to	6,761,291
In 1788, they amounted to	55,456,949
Leaving a difference of increase of	47,695,658

Notwithstanding this proof of the salutary consequences of the regulation of 1778, even in 1788 it was the object of rather bitter discussion among Spaniards of the best information. They affirmed that it had been enacted with an insufficiency of skill, in as much as it gave too great encouragement to fraudulent interlopers; and they endeavoured to prove it by a statement with which I here present my readers.

Before 1778, they said, almost half the trade of Mexico, and more than half of that of Terra Firma and Buenos Ayres, consisted of smuggling. The consequence was, that a great quantity of piales, stamped in Spanish America, went directly to foreigners.

For example, it is known as a fact that, from 1767 to 1778 inclusive, there were stamped	187,579,451
That of these there came to Spain	103,889,652

The difference between the two sums was therefore paid to contraband dealers. That if to this be added what was extracted in ingots, in produce, and raw materials, it will be evident that foreigners carried on more than half the commerce of Spanish America.

Moreover they add, since that period smuggling appears to have increased considerably.

It had been calculated, that in the six years posterior to the establishment of the free trade, 56,326,029 hard dollars of the whole of those which were stamped, had left America, or annually about 9,400,000; whereas in the ten preceding years no more than 83,689,799 dollars went in that manner, less than 8,400,000 per annum.

Ought one not, said they, to draw from this difference an inference unfavourable to the establishment of a free trade?

And how could the regulation of 1778 be otherwise than advantageous to contraband trade? Spanish America has an immense extent of coast, which government, in spite of the rigid vigilance of its agents, cannot sufficiently guard; and notwithstanding this regulation has diminished many of the charges of direct trade, it has suffered a sufficient number to remain, for foreigners to be enabled to go themselves and vend their commodities

duties to the colonists, at 20 and 25 per cent. less than the Spaniards. In order to favour national manufactures, it has laid a duty of 14 per cent. on foreign manufactures, which is augmented upon their arrival in some ports in America by an addition of 5, 8, and even 10 per cent., which, if respect be had to the difference of the prices at which they are rated, will make the whole duty from 40 to 50 per cent. on the prime value.

Two new matters posterior to the regulation have tended to favour smuggling still more.

1. A new tariff, published in 1782, increased the charge on foreign merchandize upon its entry into Spain. Spain, however, is obliged to import for her colonies linens, the greater part of the cloth which she ships, thread, a great quantity of silk articles, all her mercery, hard ware, crystals, coarse woollen goods, in short, more than two-thirds of the consumption of the Spanish Indies; all of them articles which, beside the duties to which they are liable on their arrival in America, leave Europe with an impost of 14, 20, and 25 per cent. upon their cost, according to the valuation at which they are rated on their entrance into Spain, being either less or more considerable.

2. The alteration of money has had an influence on the exchanges, which are constantly regulated by its intrinsic value.

Moreover, how can it be expected that the colonists will not prefer bartering their ingots with foreigners for merchandize, to carrying them to the mint, which receives a benefit on the coinage? or, that they should not be induced to export their dollars in contraband, while there exists a duty of 4 per cent. upon their being exported according to law?

An additional circumstance assists smuggling, in the privilege granted to Louisiana of trading with foreigners. This colony receives from Europe direct a much greater number of articles than what it consumes. What becomes of the excess may easily be divined.

Lastly, The inhabitants of the Spanish islands, possessing the liberty of trading with the different parts of the American continent, take advantage of the neighbourhood of the foreign islands, to obtain from them a quantity of merchandize, which is distributed among the Spanish colonies.

To these censors of free trade might be objected, that the greater part of these circumstances existed before its establishment; that it has besides the advantage over the former order of things, in having lessened the duties on a great number of articles; in having relieved from many incumbrances the Spanish merchants of Europe and America; that from this circumstance it must appear strange, nay almost inexplicable, that smuggling should have increased since the regulation of 1778. Doubtless, however, it will be answered, that from having greatly multiplied the places from which expeditions may be dispatched, and those at which they may arrive, the means of eluding the duties imposed on legal commerce have increased, and that in a similar proportion.

After all their inculpations, they yet do not assume that free trade should be abolished, but simply that it has been established in such a manner as to present many temptations to contraband commerce, and that it must excite no wonder if, upon its present system, it should rather become augmented than reduced.

In fact, it is evident that the Spaniard, if he buys his merchandize at the manufactory, cannot forward it to any of the ports of Spain without being liable to expences which foreigners are not subject to, who ship from their own country. Again, the freight and insurance which he pays, loads him with an addition of three or four per cent., from which the English, the French, and the Dutch are exempt, which is however nearly compen-

compensated by the commission paid on the foreign merchandize which is smuggled. Here then we see goods in the hands of the persons who receive them by contraband, at nearly the same price they cost the Spanish merchant who forwards them in a legal manner. The one has to pay the charges of transports to the American haven, the unloading, and insurance against confiscation; these collective charges are no more than 7 or 8 per cent. But the other must pay at least 14 per cent. duty on entry of his goods in Spain, 7 per cent. on their export, and more than 7 per cent. upon their arrival in an American port, which together make a total charge of 28 per cent. The smuggler thus has an advantage over the Spanish merchant who trades legally of 20 per cent., without reckoning the profit which he draws from the precious articles with which he is furnished for his returns, or the metals which he receives, without paying the export duty.

To place the Spanish merchant, therefore, upon a par with the foreign contraband trader, government should exact no more than 6 per cent. on all merchandize shipped to New Spain. Without this measure, how is it possible that it can compete with the English, who export all their manufactured goods in peace free of duty, and in war time with a convoy duty only of 3 or 4 per cent., a modus not equal to the difference of insurance which vessels navigating under other flags must pay; with the French, who since the revolution pay no duties on exportation; with the Dutch, whose export dues are not more than 1 per cent.; or with the Danes, who have a free port in St. Thomas.

Still smaller imposts should be levied on goods shipped for the Spanish islands, and all the immediately contiguous coasts, for the purpose of counterbalancing the facility for smuggling, which their position affords.

On the other hand, heavier duties might be imposed on merchandize shipped for Buenos Ayres, and somewhat even additional upon those destined for Peru: contraband entries being much less easy at the first of these colonies since the destruction of the colony of San Sacramento, situated opposite to Buenos Ayres, and being almost null in Peru and Chili.

As for Spanish merchandize, perhaps it would be best that the duty on export thereof should at most not exceed 2 per cent. Possibly the diminution of revenue which this would appear to threaten the treasury with, might be objected to by government, not yet persuaded of the truth which in so keen a manner was expressed by Swift; that *in the arithmetic of taxes, two and two do not always make four*. But if from this reduction, of unpleasant aspect in the first instance, the result should be, that the articles which commerce wafts to the Indies in a contraband manner should take the legal channel, government would not be long in finding that by losing a part of her revenue, she would almost annihilate smuggling, vivify her trade, and of most consequence of all, secure the preservation of her colonies, greatly risked by the clandestine and continual communication which they maintain with foreign nations.

Moreover, the Spanish government should bear in mind, that it has to provide for the military and civil administration of its colonies, for the expence of public works, of charitable institutions, and, in short, for all important charges; that these expences are very far from being covered by the revenue of its mines; that trade is the only profit which Spain draws from her possessions; and that should she be ruined by smuggling, she will be obliged to abandon them for want of means to answer the cost of their dependency. Even this might not eventually be materially injurious to her; but since her glory, whether well or ill understood, prescribes to her the preservation of them, let her study to avoid the rocks against which these possessions, more brilliant than useful, are destined to strike at some future period.

Even if there should exist a mode of preventing smuggling compatible with the reservation of the duties as they are at present, still ought the government to lessen the impediments to the free course of commerce; as such a measure would increase consumption, and consequently benefit Spain. It already sees that, in spite of prohibition, a manufactory of coarse cloths has been established in the province of Quito, and others of stained cloths, galloons, hats, and different articles besides, in various parts of New Spain. Let European goods arrive there at a moderate price, these would fall of themselves. Allow the colonists a perfect freedom to export their raw articles in return, and they would not suffer by changing the application of their industry. Agriculture of itself is sufficient to employ all their hands, and procure them all the necessaries of life; and, with the superfluity of the varied and valuable productions of their soil, Spain might purchase the produce of the soil and industry of the rest of Europe. Hence would arise a commerce of barter, equally advantageous to both worlds, and the ties between the metropolis and her colonies be drawn more close, by the effectuation of that real happiness which nature appears to have intended. She has bestowed upon Spanish America immense woods, vast countries exceedingly fertile, and a disproportionate population. In such a country manufactories cannot flourish. Every thing which draws its inhabitants from their fields and cultivation, has for a lamentable consequence the effect of concentrating the population in towns, and leaving the country a prey to wretchedness.

These ideas have occurred to me; and whatever may be said of a free commerce, whether its advocates or its opponents be right or wrong in their assumptions, it is incontestible that since its establishment the Spanish Indies have increased in prosperity. It is furthermore ascertained that smuggling has materially diminished since 1788, the epoch of the outcry that was raised against it. As a proof, the returns of 1791 have been cited. In this year there arrived from Mexico and Peru 22 millions of hard dollars. Now it is known that Mexico yields commonly from 21 to 22 millions annually, and Peru five or six, making together a total of from 26 to 28 millions *. If then from this

* The following presents an account, drawn from good authority, of the product of the mines of Spanish America, anterior to the war of the revolution, which interrupted materially the connections between Spain and her colonies.

At the mint of Mexico, in 1790, there were coined in gold	-	-	-	622,044
In silver	-	-	-	17,435,644
			Total	18,057,688
At Lima, in 1789, were coined, in gold piaftres	-	-	-	765,762
In silver	-	-	-	3,570,000
			Total	4,335,762
And in 1790, in gold and silver piaftres	-	-	-	5,162,240
In the same year, 1790, the mines of Potosi produced 2,204 marks of gold, which produced 299,246 piaftres, and 462,609 of silver, or 3,923,176; making together	-	-	-	4,222,222
And at St. Jago de Chili in gold 721,754, and in silver 146,132; together	-	-	-	877,886

General Statement for 1790.

Mexico	-	-	-	18,057,688
Lima	-	-	-	5,162,240
Potosi	-	-	-	4,222,422
Chili	-	-	-	867,886

Sum

capital it be computed that somewhat must remain in the country for its currency, it will be evident that there can be but little left for contraband exportation.

Moreover, it cannot admit a doubt that Spain has lately furnished America with a far greater quantity of wines, fruits, and other produce, as well as of manufactured goods, than what it had been used to do, or that productions before unknown have been returned; that those which before came in small portions are furnished plentifully, such as tobacco, sugar and coffee; that Cuba particularly has notably improved notwithstanding at present it be wide of that prosperity which it is capable of attaining; and lastly that communication between the metropolis and her colonies has become infinitely more active: let this single fact suffice—Before 1778 the fleet and the galleons used to sail every three years. A merchant then must necessarily have been subjected to considerable expence, and to an infinity of trouble in order to obtain permission for his vessel to form a part of the expedition, which consisted of no more than 14 or 15 ships. In 1791, 89 vessels were dispatched from Spain to the Indies. Does not this at once answer the question of the propriety of a free trade?

At first the minister for the Indies did not deem it proper to extend free commerce to Mexico, which remained for eight years subject to the ancient regulations. When he esteemed himself justified from the numerous data with which he was furnished, and was satisfied that he had nothing to apprehend from extending a species of free trade to this vast colony, with which he was better acquainted than any of the rest, he caused it in 1786 to participate in measure in the regulation of 1778, but confined the annual supply of merchandize to be furnished it, to 6000 tons; whimsical restriction! which evidences the predilection which Galvez had for regulating systems.

I had a close acquaintance with this ambitious minister. He was exceedingly laborious personally disinterested, and possessed some talent; but with these, his manners were repulsive, and he assumed all the consequence of a vizier. It is true he had all the power, without at the same time running the hazard of an Ottoman minister, and Charles III. had an entire confidence in him. This monarch, truly virtuous, had some peculiarities; he looked upon himself as a great tactician, and in consequence considered and determined every thing that regarded the army and military plans. As for the other departments, that of his conscience inclusive, he blindly submitted them to the management of those he had charged with them; and none of the ministers profited more by this concession than Galvez, who pretended at all times a difference to the *superior* intelligence of the sovereign. Marshal Duras became acquainted with him during his embassy in Spain, and appointed him advocate for the French nation; this was not an idle appointment then at Madrid, although it has latterly been suppressed. It closely connected him with the French, and their ambassador. Possibly a near examination into our character may be more prejudicial to the forming a favourable opinion of us, than a slight acquaintance. However that may be, notwithstanding the frequent communications he had with the French, he entertained towards them an aversion, that he but ill disguised beneath the veil of friendly professions. Mr. d'Ossun threw this lean carp into the fish-pond. He recommended him strongly to the Marquis de Grimaldi, who in 1763 took the port folio of foreign affairs, and to Charles III. himself whom he

Sum of the produce of the mines of Spanish America in the year 1790	-	-	28,310,236
Of which in gold there were not more than	-	-	4,020,000
But which does not include the produce of the mines discovered in the Viceroyalty of St. Asinor of those of Buenos Ayres, of which in 1790 there were thirty of gold, and twenty seven of silver, seven of copper, two of tin; and seven of lead, but what result had followed the working of them had not come to hand.			

followed

followed from Naples to Madrid. He greatly contributed towards obtaining for Galvez an important commission to Mexico, where he shewed his domineering and enterprising spirit, and where, intoxicated with power and overcome by the fatigue of an extremely laborious mission, he became a prey to a malady, which was accompanied and succeeded by many acts of insanity. On his return he was rewarded for his pains, and revenged for the inculpations on every head which had preceded him in Europe, by an appointment to the office of Minister for India; that is to say by an appointment, which gave him a more extensive and unlimited authority than his possessor by any individual, not himself a sovereign, upon the surface of the globe. In this situation he retained towards Mr. d'Ossun the exterior of gratitude, towards the French nation at least the *language* of attachment*. Yet of this nation he entertained a jealousy and antipathy which he demonstrated on more than one occasion. His despotic nature was liable to irritation at the slightest contradiction. His administration seemed to be the ark of the covenant with which no one could touch with impunity. Whosoever should presume to reveal or pry into its springs became at the instant a viper in his eyes. He could scarcely ever forgive Robinson for publishing his work on America. He constantly retarded the translation of it, under pretext that he could not have it appear without a correction of certain errors with which it was replete, and which in a supplement to the work, admirable in some respects according to his own allowance, he himself would refute by a statement of facts. Before he had completed this work, perhaps before he had ever seriously thought of it, he died. As for *the philosophical history of Raynal*, as often as it was mentioned to him, it put him in a rage. I myself have heard him break out into imprecations against certain Frenchmen, who had taken advantage of an allowance granted them for a temporary residence on the coast of Cumana, to introduce some copies of *that infernal work*.

Galvez displayed the same imperious and violent character in every branch of his vast administration. That he was extremely diligent cannot be denied, nor that he had a resolute inclination to effect the reform of abuses, and oppressive regulations. But among the most enlightened Spaniards it is questionable, whether during his administration he effected most good, or harm, for the Spanish Indies. What however is certain, he created in them, much against his inclinations, a disposition to independence. Too desirous of proving that an able minister might render them productive to the revenue of the metropolis, to which for a long time they had been a burthen; by an increase of taxes, and a bad choice of collectors, he provoked an insurrection in 1781, at Santa Fi; and one shortly after still more serious in Peru. The latter was not terminated but by having recourse to bloody measures, and the condemnation of the intrepid chief of the rioting band *Tapacameros*. And what instant did he choose for irritating and oppressing the Spanish colonies? The very moment in which, for motives of no greater weight, the colonies of Great Britain rebelled against and deserted her mother country.

* Galvez, a man of real talent, and who knew better than M. de Bourgoing the character of the nation with which he had to deal, who from his minute attention to colonial affairs was competent to judge of the remedies for the disorders which existed in the colonies, previous to his administration, and the proper time for application of them; M. Galvez, who was as well a man of sense and keen discrimination, and had a near acquaintance with that nation whose character is more shining than valuable, and truly, and not only probably, better calculated for a slight acquaintance than a near inspection; this M. Galvez had a well founded aversion towards the French. This carp, which the French ambassador threw when lean into the pond, with intention when fattened to serve up at table, although thankful to his benefactor, became soon not only a fat but an old fish; and the French found him continually too cunning to be taken by the nets they cast for him; he was too little of a glutton to seize the tempting baits with which they sought to hook him; and too little sensitive to be tickled out of the water.

For the purpose of establishing and collecting the new taxes he had laid on the people, sixteen thousand officers were employed, whose salaries and misapplications absorbed all their receipts. Notwithstanding this, he boasted with unblushing front, that he had augmented the revenue of Spanish America from five millions of piastres to 18, the while towards the end of his administration, government was obliged to send remittances of money (*situados*) to the Philippines, to Porto Rico, to Santo Domingo, to Louisiana and sometimes even to the Havannah.

On the other hand, it must be granted, that he successfully laboured at enlivening commerce and agriculture of the Spanish Indies; that La Trinidad, Louisiana, the Philippines, and particularly Mexico, owe to him the dawn of their prosperity. I shall trace a rapid sketch of what he has effected for these colonies, or at least of the beneficial alterations contemporary with his administration.

CHAP. VIII.—*Measures adopted with regard to Louisiana.—Of the cession of Santa Domingo to France.—Recent prosperity of Trinidad —Treaty of Spain for the supply of negroes.*

From the moment Louisiana was ceded by the French to Spain, the court of Madrid, which to subjugate this colony had employed such vigorous measures as could not fail to render its yoke odious, endeavoured to soften its fate by granting to the inhabitants such privileges as were calculated to insure their prosperity. In 1768, it was enacted, that merchandize going from Spain to Louisiana, and the productions received from that colony, should be exempt from all duties of exportation; and that the produce of the colony should pay a duty of but four per cent. upon entering Spain. But as those in the greatest abundance, such as tobacco, indigo, cotton, and particularly furs, could not find a great sale in Spain, it was agreed that French vessels might load with them at New Orleans, but that they should arrive there in ballast. This restriction was so frequently eluded, that the Spanish government saw the necessity of taking it off, convinced that the furs, skins, &c. of Louisiana could but be exchanged for goods manufactured in France.

The regulation of 1778, in addition to the other privileges of Louisiana, exempted all furs from duty for the space of ten years. Afterwards in 1782, Pensicola and West Florida being added to the Spanish possessions in the Gulph of Mexico, it was established, that for ten years, reckoning from the conclusion of the peace, ships should be permitted to sail from French ports to Louisiana and Pensicola. And bring back returns of all the productions of the two colonies, that the articles, as well exported as imported, should pay a duty of no more than six per cent.; that in case of necessity the inhabitants should be permitted to furnish themselves with provisions from the French American islands; and that the negroes, which they might procure from friendly colonies should enter their ports duty free. The regulation expressly mentioned, that the foreign merchandize received at Louisiana should be for its own consumption only. This restriction was in course evaded; for considering the numerous expeditions made to New Orleans in consequence of the regulation, many speculators would have been ruined, had their cargoes had no other market than that of Louisiana.

This regulation of 1782 soon made some addition to it necessary; the people of Louisiana were to form no commercial connexions but with France. Had the French been able to furnish them with all the articles they required, they would have deprived the contraband traders of any benefit from fraudulent commerce by way of Florida, and the

the north of the Mississippi, and would have procured at an easy rate the furs, beaver skins, and other productions of Louisiana. But as the inhabitants of this colony consumed certain foreign merchandize not produced by France, such as Silesian linens, English chintzes, &c. in order to secure the whole profit of this new arrangement to the French, it was necessary to obtain from the French government an allowance for the free importation of these articles, which might afterwards have been shipped from the ports of that kingdom immediately to Louisiana. The Spanish minister confided this negotiation to M. Maxent, father-in-law to general Galvez, a man whom that minister had reason in priding himself at being connected with, a man who in the American war displayed great brilliancy of talent, who had paved the way for the prosperity of Louisiana by the mildness and wisdom of his administration, and who afterwards, promoted to the viceroyalty of Mexico, was by a premature death snatched from his country and a truly interesting family. The French government, fearful of injuring the revenues of the country, declined the proposals of Mr. Maxent; and the court of Madrid was obliged to extend to other ports, such as Ostend, Amsterdam, Genoa, &c. a privilege which at first had been reserved for those of France.

This circumstance however did not hinder the French from enjoying almost the whole of the commerce of Louisiana, up to the period of the rupture between the two countries. They even maintained two commissaries in the colony for the purpose of superintending the interests of their merchants.

The state of Louisiana is not materially changed from what it was at the time of its cession to Spain. Its capital at that time contained 5 or 6000 inhabitants. In 1793 it did not contain more than 8000, exclusive of negroes, the number of whom throughout the colony amounted to about 25,000: that of the whole of the colonists might be reckoned about 20,000: the majority of which are French. If the persons employed by government both civil and military be excepted, who are Spanish, few others of that nations are to be met with. The Americans have formed establishments at Natchez, where they have introduced English cultivation with success; and upon the right bank of the Mississippi are some Germans, who next to the Americans are the best farmers in the colony.

The extent of cultivated land in Louisiana is yet very confined; tobacco and indigo are the only articles which have yet attained any high degree of prosperity. No nevertheless before the war with France it had a handsome portion of export trade, the amount may be computed at 8,400,000 leones (350,000*l.*) annually. But excepting a part which certain avaricious governors are said to take in this trade, the rest is confined to foreign merchants, who only establish themselves at New Orleans for the purpose of acquiring fortunes; and afterwards return to their native country: woeful circumstance, which depriving this colony of capital without which nothing can be undertaken, deprives it of the means of displaying the advantages with which it has been favoured by nature.

These advantages are so numerous and brilliant, that, when known, one is induced to pardon our forefathers for having been led astray by the deceptive illusions of the Mississippi scheme. Let the rapid sketch here adduced serve for framing a judgment of them.

Louisiana is situated in one of the finest climates. It is watered through the whole of its length by a river, which adds to the natural fertility of the soil, and which at its mouth presents an immense outlet for all the productions it nourishes in its course.

At the head of these is to be placed *tobacco*, which is greatly superior to that of Maryland or Virginia. Of this article 3,000,000*lbs.* are annually exported on account of the King of Spain; which, at 5*d.* per *lb.* amount to 61,250*l.*

The *indigo* of Louisiana is equally good with that of St. Domingo, and consequently much superior to that of Carolina. Before the war with France and Spain a great quantity was exported to France; the amount of its annual produce was computed to be 500,000 lbs. weight, which at 5s. 6d. per lb. gives for its value 137,500*l.*

Skins, for a long space of time, formed a principal article of trade from Louisiana. From 1765 to 1778 it was computed that the nature of the annual exportation amounted to 166,600; but this commerce is diminished one half by the cause before noticed; the merchants having no sooner enriched themselves than they withdraw, carrying away with them their capitals, which are absolutely necessary in the fur and skin trade. The savages, with whom this trade is most beneficially carried on, are the *Mis-souries*, who bring the produce of their hunting to Saint Louis, a village the inhabitants of which consist principally of Frenchmen, who are well beloved in the adjacent district.

If Louisiana had more markets to send her productions to, she might reap great benefit from the collection of *pitch*, and *tar*, of an excellent quality; which may be obtained in large quantities, particularly between Mobile and New Orleans.

It produces as well an immense quantity of *timber for ship building*. The value of its exports of masts, spars, planking, &c. is computed at 35,000*l.* annually, besides a number of small vessels, and even of as high a burthen as 400 tons, which are built in the Mississippi, and which are equally strong and cheap. Its cedar is of the finest quality; green, white, and red oak are very abundant, and remarkable for the size, height, and toughness of the wood; their cypresses make excellent masts, and to the West Indies they ship prodigious quantities of shingles, staves, and boards. They ship annually for the Havannah 100,000 casks of sugar; and employ near 500 saw mills, of two saws each, which work by the rise and fall of tide.

Immense flocks, and herds, furnish them with a superfluity of meat, and already form a considerable branch of trade, in the exportation of *hides* and *tallow*. Finally they could export, if they had a market, a number of *horses*, *vegetable wax*, wool, hemp, and even silk. I shall say nothing of rice, peas, maize, &c. of which but small quantities are exported, which however if added to the naval stores may collectively be valued at 17,000*l.* sterling.

The French trade before the cession of Louisiana to France, employed six vessels, laden with indigo, skins, and dollars for the metropolis, more than sixty small vessels between New Orleans, and San Domingo, and some few to Martinico and Guadaloupe, laden with wood, rice, pulse, pitch, tar, tobacco, and particularly planters, and which carried back all descriptions of European goods, and negroes.

It is at first sight an inexplicable phenomenon, with all these advantages, that a colony so highly favoured by nature, and for which Spain while it was in her power, by lessening the duties so much beneath what her other states were taxed at, and by other privileges granted, so greatly assisted, should have made so little progress. It has now changed its master, and there remains to be seen if in other hands, and with more attention to the advantages to be derived, its race to the goal of prosperity be not as fleet as before it was tardy. The Americans appear destined to force Louisiana at length to fulfil the purpose of nature. Already settled upon the great river Mississippi, and upon the *Messouri* and the Ohio, whose tributary streams increase its sea of waters, they solicited with threatening impatience a right of passage to the ocean, which the regulating system of the Spanish government refused; and which early or late they must have forced; when Spain in 1795 at length conceded it to them.

This measure, which decided the fate of the western states of America, and secured their success, must naturally tend to augment amazingly the prosperity of Louisiana.

New

New Orleans must become the depôt for the goods which they have to export, as well as for those which they may require, and consequently become a place of permanent attraction to speculators; and the example of this fecundating activity cannot fail to enliven the whole colony. The English government was greatly pleased with the concession made by Spain. The Mississippi, observed their orators, comes from the North West, the Ohio which falls into it from the North East. Both traverse countries which are nowhere surpassed in fertility, countries which produce abundance of wood fit for the construction of mills, and houses such as *oak, fir, elm, and walnut tree*. This wood by descending the rivers to their mouth will arrive cheap at the English islands. These islands moreover may receive by the same channel as far as from Pittsburg in the same latitude as New York, wheat, and iron, with which they could not be supplied from New York itself, or Philadelphia, but at a much higher rate. In one word, the opening of the Mississippi insuring sufficient shipments of grain for the consumption of her islands will dispense England from the necessity of provisioning them, and greatly extend at the same time the diffusion of her manufactures. Should experience justify the favourable conjectures of the British ministry, it may be said, that the treaty by which the Prince of the Peace and Mr. Pinckney terminated a very knotty negotiation in 1795, after thirteen years discussion, will have possessed the singularity in diplomatic annals, of having been directed against no one, and advantageous to all.

Had Louisiana continued subject to the Spanish, in all human probability it would have reaped advantage from the happy change in its relations, and might by its connections with France have been of more actual benefit than if it formed a part of its colonies; we may at any rate be satisfied with our having abided by the treaty of Basle, and being content with the cession of the Spanish part of St. Domingo.

Spain, on her side, in yielding it, made no painful sacrifice: to her it was rather burthenfome than beneficial. It is well known that within the century preceding 1784, it had been a net expence to her of 17 millions of piasters; and that latterly it cost her 200,000 hard dollars annually. In assuming this sum, which I have especial reasons for deeming correct, it does not appear that I exceed the idea which enlightened people had entertained of its amount, since M. Moreau de St. Mery in his valuable work on this island, rates it at 1,700,000 livres, or upwards of 300,000 dollars. Notwithstanding the Spanish part of the island was double the extent of ours, its population at the period adverted to did not amount to more than 100,000 souls, of which scarcely 3000 negroes followed agriculture; nor did the inhabitants even ten years later, according to St. Mery, surpass 100,000 of free men, and 15,000 slaves. It possessed scarcely any other cultivated lands than such as were tilled by our run-a-way negroes. This colony may on the establishment of power in the West India islands become in our hands of more value than the whole of our Antilles. None of the valuable productions of America are foreign to its soil. It is capable of yielding as much tobacco and sugar as Cuba; as much of coffee and cotton as our former part of St. Domingo was accustomed to do; better cocoa even than that of the Caraccas; but all its productions, although for the most part indigenous, are small in quantity at present in this colony, after having been formerly so plentiful, that in cocoa alone St. Domingo furnished a sufficiency for the entire consumption of Spain. There are two districts on this part of the island well adapted to the rearing of sheep, many suitable to horned cattle, its territory is well watered in every respect, and of an uneven surface. To conclude, four of its ports, *San Domingo, Samana, Port de Plata, and Monto Christo*, are well adapted for the reception and exportation of its produce.

From

From the foregoing sketch it will be at once concluded that this new colony acquired by the treaty of Basle is singularly favoured by nature, but at the same time all remains to be done; and consequently, the advantages which the French may reap from it, can be looked for only at a very distant period.

This at the same time is all that can be granted to those who blame the policy of our making this new acquisition, and among their number it cannot be disputed that there are some who like M. Moreau de St. Mery reason with much plausibility and from incontrovertible facts. With them we are disposed to agree that the French part of St. Domingo will gain by its incorporation with the Spanish part, neither any considerable means of defence, nor perhaps a greater security for its navigation in time of war; but at the same time, we cannot share their apprehensions of seeing the means of subsistence diminish in consequence on the ancient French colony. From the evidence of a century past, of what in this respect has taken place between the French colonists and the Spaniards, it is evident, that the supply of cattle afforded by the Spanish part of the island to the other must necessarily be precarious as long as it is dependant upon foreign governors and administrators, with whom the rulers of the French could make no other than provincial and imperfect stipulations, for the observance of which no guarantee was afforded: whereas in the present state it will be possible to make permanent, and strict regulations, which will secure our ancient colony against this inconvenience.

In vain do they who are of opinion that the acceptance of this colony is impolitic, assume, in opposition, that Africa must be depopulated to supply it with the million of negroes necessary to open the soil, a difficulty of no less magnitude would remain to be overcome in finding capital for such an immense undertaking; particularly after the horrible commotion which has occurred, and which will leave so much to regenerate in the former French colony. To them may be answered, that the French government lie under no obligation to effect the amelioration of the whole colony at once; and that in fact the means to be employed are not of the description that they appear to indicate; since from the solemn abjuration of the slave trade which has been made in France, it is deprived of the means of consecrating the Spanish part of St. Domingo, to that species of cultivation, which, apparently, cannot be undertaken without the assistance of negroes; that there are other modes of rendering productive a country, which by their own allowance presents so many resources, and that in the interval of the government becoming occupied with its improvement on a more extensive scale, nothing opposes its beginning to populate and clear it, by inviting to it the numerous French families who have been ruined by the revolution, and the numerous wanderers from every country to whom all places are alike, when their distress may find alleviation, or their situation in life be varied for the better. These new colonists, attracted by the beauty of the climate, by the advantages which its incorporation with the French republic holds out to them, and by the cheapness with which they will be enabled to purchase uncleared lands, would thus pave the way for the prosperity of the country, scarcely yet inhabited, without its becoming necessary to *depopulate Africa*, or empty the national exchequer.

This momentous question of the policy of the acquisition of the former Spanish part of St. Domingo, has been treated by both sides with that exaggeration which disfigures every thing by its attempt at embellishment, and predicts consequences which never happen. On one hand it is affirmed, that this acquisition will ruin the French colony; that the Spanish inhabitants will leave their quarters; the meadows whereon they graze the cattle, without which the French cannot subsist, will be either abandoned or

appropriated to cultivation, and the colony will perish for want in the midst of its plantations of sugar and coffee. Again, how can the forces of one single power protect so vast an extent of coast? What a robbery must it not occasion the forces of the metropolis, which so much requires her power at home! What an unwise appropriation of that treasure which she herself is in such need of!

On the other hand, those who are fond of embellishing the future, reckon upon St. Domingo attaining in ten years such a degree of prosperity as is wholly unexampled; encreasing the imports of France by 150 millions of livres, and affording a supply for the necessities of all the world. Patriots so easily alarmed, dismiss your sombre fancies; visionaries of optimism, wake from your fairy dreams! Neither of your prognostics bear semblance of a likely feature. You have seen the destined pairs, whose amiable qualities, whose apparent suitableness for each other, whose mutual love excite such tender interest: their wedding day arrives, how serious the state, how decisive of their future destiny! You exclaim, "on this instant depends their *happiness or their misery*". The sentence is erroneous: they are deceived as well as those who tell them so. They are about to pass together thirty years of their lives without effecting either the one or the other. Thus will it be with St. Domingo, and with a crowd of similar other cases from which great wonders are expected, or great disasters apprehended.

I now pass on to other colonies which are indebted to the minister Galvez for at least the dawn of their regeneration.

Trinidad had for a long time been one of the most unprofitable of the Spanish colonies. Its situation at the entrance of the Gulph of Mexico, near the coast of Terra Firma, the salubrity of its climate, the fertility of its soil, scarce opened by the husbandman, and the excellence of some of its harbours, on the contrary, ought to make it a valuable possession. Galvez, in order to give new life to this palsied member of the Spanish monarchy, added in 1776 the island of Trinidad to the department of the company of Caracas. In 1778 it was included in the new regulation. The next year M. d'Avalos, intendant of the province of Caracas, consulted and encouraged by the minister, took upon himself to people and fertilize Trinidad. A Frenchman, not less active than himself, seconded his intentions: this was M. de Saint Laurent, (since known by the name of Roume) who after living several years on an island of Granada, where he has acquired general esteem, went to settle at Trinidad. He was previously acquainted with all the resources of the island, had connections with most of the Caribbee islands, and possessed, in a superior degree, the talent of inspiring confidence and benevolence by his easy manners, and his honest bluntness. M. d'Avalos deputed him to procure settlers for the island of Trinidad. For effecting this purpose he proposed a regulation, which M. d'Avalos published the beginning of 1780, without waiting for the consent of the court, and it produced a speedy effect. In the month of June 1782, there were a hundred and seventy-four families of new colonists, who had brought with them a thousand and eighty-five slaves, and had begun nearly two hundred plantations of sugar, coffee, and cocoa. However the greatest part of the emigrants, upon whom M. d'Avalos reckoned, waited until the court of Spain should make a formal avowal of the promised privileges; and M. de St. Laurent came in 1783 to Europe to solicit it. He was not satisfied with his reception by the jealous minister, who wished every thing should proceed from himself, and could ill brook that any thing beneficial should take effect at the instigation of another. To justify the promises he had made to the emigrants, he demanded privileges which were found incompatible with the laws of the Indies; and the council, the depository of these laws, opposed the ancient inflexibility of its principles. He conceived himself to possess a right to the acknowledge-

ments of Spain, and demanded them with that bluntness which scorns to ask for justice in those accents employed in the solicitations for favours. In short the fate of Trinidad was decided without his occurrence*.

In the month of November 1783, a royal mandate appeared which weakly seconded the advances of the colony to prosperity. It granted to the new colonists, a part only of the privileges which St. Laurent had judged necessary; it allowed them a free trade with the French in Europe as well as in the Caribbees, but stipulated that the commerce should be carried on in Spanish vessels.

The importation of negroes, which the colony wanted, was permitted but with restrictions, stipulating simply that this island should serve as a depository for all those which foreign nations should bring thither. Spain could not do without these to furnish her colonies. At the expiration of the famous *asiento*, which the English obtained at the peace of Utrecht, this charge was transferred to a company which had made Porto Rico the depository of all the negroes it bought. The contract of the company expiring in 1780, Spain determined on importing her own slaves. With this view government had acquired from Portugal, by the treaty of peace in 1778, two small islands near the coast of Africa, called Annobon and Fernando del Po. But, besides their being badly situated for the purpose, Spain is in want of funds which are especially necessary for the negro trade; she has neither vessels properly built for the purpose, nor the merchandize suitable to barter for negroes, nor sailors accustomed to the traffic, nor surgeons who understand how they should be treated; and until she thus becomes upon an equality with the nations used to this commerce, she will be obliged to have recourse to their assistance. It is however only by degrees that she will be persuaded of this truth. Thus, at first she had recourse to certain foreigners, who within a stated time engaged to furnish her with a limited number of negroes. These partial measures turning out insufficient at the beginning of 1789, she adapted the plan of allowing foreigners as well as Spaniards the liberty of importing negroes into the colonies of St. Domingo, Cuba, Porto Rico, and the Caraccas. In the month of February 1791 she extended this permission to two years longer, and included Santa Fe in the allowance. Towards the close of the same year appeared a proclamation suffering natives as well as foreigners for six years to go to purchase negroes wherever they were to be met with. and disembark them in the colonies previously mentioned, as well as at Buenos Ayres; with this restriction only on foreigners, that their vessels on their arrival on the Spanish coasts should contain no other lading, not even excepting agricultural tools, the introduction of which was exclusively reserved to Spaniards. For all the edicts issued by the Spanish government in modern times are continually shackled with restrictions and exceptions. On this occasion this was particularly experienced by the French. They were entirely excluded from the privilege which the proclamation granted to other foreigners; the motive was clear enough. Even the most pious courts do not oppose the most revolting of all traffics, which is legitimatized in their eyes by the prosperity and profit it brings to their country; but by the importation of French principles they conceived there was nothing to be acquired, and consequently placed every obstacle in its way.

In the mean time we felt offended at the exception. Our traders solicited the revocation of an exclusion which was injurious to them, and in the month of May 1792 I ob-

* This estimable man found himself, as the reward of his talents and labours, abandoned to all the anxieties caused by a derangement of property, when Marshal de Castries, who had found an opportunity of becoming acquainted with his merit, recompensed him for the injustice and caprice of fortune, by nominating him commissary at Tobago.

tained their wish. It was at this instant that Spain, acknowledging my character, seemed to be reconciled for a time with the revolution. The French administration, however, at that period did not think it prudent to avail itself of the grant. It was of opinion, that for a trifling pecuniary gain its own islands would be deprived of their regular supply from the proprietors of slave ships, finding it more advantageous to carry their negroes to the Spanish colonies. It was wrong in its computation, for slaves are more dear in the French than in the Spanish settlements, and consequently would secure the former a preference. The English were likely to be most benefited by the edict; their import of negroes amounted to from 40 to 45,000, and was consequently greater than their demand; while the whole importation of the French did not exceed 25,000.

Moreover, the war which shortly after took place between France and Spain made a nullity of the allowance conceded to the former, and the philosophy of our legislators shortly after annihilated the traffic in negroes. The government of Spain has not imitated the generous example. Here, however, it is just that I should observe, that if this horrible practice were tolerable in any part of the globe, it would be under the Spanish dominion; and it is worthy of remark, that the nation which is charged with having used more cruelty than any other in the new world, is that which, with the Portuguese, maintains towards its negroes the most mild and benevolent deportment; as if studious, by its present humane disposition, to expiate, or at least make amends for the cruelties of their forefathers. But let us return to Trinidad.

The court of Madrid at length followed a plan with respect to this island, bold in itself, but with which she has reason to be satisfied. She granted to it a licence, such as perhaps cannot be exemplified on the surface of the globe. Before the American war it was almost a desert, in a perfect state of nature. Spain threw open its ports to foreigners of every nation. She invited them to establish themselves there with their capitals and negroes, exempted from duties every thing exported by Spaniards, as well from the colony as from the opposite coast of Terra Firma, and laid but a very moderate duty on whatever was exported by foreigners to alien ports. She did more: she entrusted the government of Trinidad to a person as well informed as he was beneficent, *Don Joachim Chacon* *.

Hence has arisen a prosperity as brilliant as rapid. The soil of Trinidad is calculated to produce every species of colonial production. Cocoa, indigo, cotton, and coffee have been successively tried; but it has been found impossible to preserve them from the creeping and winged insects with which the colony abounds, and plantations of these descriptions have been abandoned. But the cultivation of sugar is already in the most flourishing state. Less than fifteen years ago there were scarcely twenty sugar plantations, there are now more than three hundred and sixty. From different islands in the West Indies, particularly from the French, the discontented have fled to Trinidad, taking with them all their negroes. It will be no exaggeration to compute its colonists at sixty thousand at this moment; of which but few are Spaniards, many Americans, and many French, as well emigrants as patriots. There, under one of the finest climates in the universe, on a virgin soil, which usuriously repays their labours, they forget their

* Events, however, have proved, or at least have left room for believing, that his courage was not equal to his intelligence. It was he who presided at the defence of Trinidad when the English, with so little difficulty, made themselves the masters of it in 1768. Shortly after, their governor of St. Vincent went to see the actual state of the new conquest, and satisfied himself of its importance, not only with respect to its intrinsic value, but more particularly from its geographical position. The report which he made on his return to London to the British ministry fixed its attention so strongly, that it was easy to perceive, even at that instant, the fixed acquisition of this valuable colony would be made one of the articles *fine qua non* of the future peace.

former feuds, and live in peace, protected by a wise government, which alike dispenses to every one both happiness and protection. The new-comers received advances of agricultural implements, and even capital, the value of which was rigorously reclaimed at the expiration of three years. If they bring capitals, they buy such plantations already begun as are on sale; or grants of lands not then sold are made them from the crown, the price of which is paid after their being brought into a state of production. The rights to which the colonists owed their prosperity were, in 1796, prolonged for eighteen years; in less time than that will Trinidad become as flourishing as any other colony of the new world.*

CHAP. IX.—*What the Spanish government has done for the Philippines and Mexico.—Working of the mines.*

LOUISIANA and Trinidad are not the only colonies, the regeneration of which has been undertaken by modern Spain; yet is there one at the extremity of Asia which seems to accuse the metropolis of taking too little interest in seconding the bounties of nature. I speak of the Archipelago of the Philippine islands, which, if the Marianas be included, comprize a possession more extensive than France, Spain, and Italy joined together. Not only does every requisite of life abound in them, they at the same time produce abundance of ship timber, woods proper for dyeing, several iron mines, and rivers navigable a long way up the country. Cotton, tobacco, indigo, and sugar thrive in that soil; some gold is also found among the sand of certain rivers. The vegetable kingdom is rich beyond measure. Sonnerat brought away from there in 1781 near six thousand plants before unknown in Europe. The number of subjects who acknowledge the Spanish dominion is upwards of a million, without including the wild natives who live in the woods, and of which the enumeration would be almost impossible.

Convinced of the impossibility of establishing a regular and well supported commerce between them and the mother country, the Kings of Spain have confined their efforts to bestowing on them a communication, by the port of Acapulco, with the western coast of Mexico. The famous *Nao* (Galleon) which every year makes the voyage from Manilla to Acapulco, across the South-Sea, is generally known. It was, for the most part, by this route that Spain communicated with the Philippines; a communication without profit for her European subjects, and of which the principal advantage was reaped by the Chinese, the Armenians, and other nations who frequent the eastern ocean. Even the revenue derived no advantage from it; for the moderate produce of the duties was not sufficient to defray the expences incurred in their collection. The civilized inhabitants of the Philippines, without cultivation or industry, had no other resource than in the commissions to which their situation was favourable. Like Spain in Europe, the

* Such was the situation of Trinidad when the English took possession of it; now that is ceded to them by the treaty of Amiens, they will not fail to make their harvest of all the advantages which it holds forth. The principal one for them will be the possession of a colony abutting upon the Spanish coast of Terra Firma, and the being enabled to supply it abundantly with the produce of their manufactories; possibly they may not neglect it in other points of view. Trinidad, to which nature has been prodigal of all descriptions of wealth, contains much treasure worthy of the attention of the naturalist. It was with a view to the discovery thereof that our government, with the consent of the court of Madrid, and provided with a protection from Great Britain, dispatched the frigate *La Belle Angelique* in 1795, under the command of Captain Baudin, for Trinidad, with some of our learned men, skilled in natural history and botany. This object, of which circumstances have permitted no more than the outlines to be sketched, will no doubt be completed by the British government, and leave science nothing to regret from the change of masters which this colony has undergone.

island of Luconia, or Manilla, which is the principal of the Philippines, was only a channel through which the piastres of Mexico passed to the Indian nations; so that, notwithstanding the enormous sums of money which commerce has carried to these islands since, the time of their conquest, there remains in them but a very moderate quantity.

Their defence was as much neglected as their interior prosperity. It may be recollected with what ease they were taken in the war before the last by the same General Draper who commanded at Minorea under General Murray, when that island was surrendered to the Duke de Crillon. Spain has profited by the lesson. The present monarch has ordered the port of Cavite, at the bottom of which Manilla is situated, the capital of the island of Luconia, and the residence of the governor, to be fortified; and in the American war this important place was in a situation to brave the renewed attack of the same enemies.

In the mean time, the minister of the Indies endeavoured to excite the industry of the inhabitants, who, notwithstanding their supineness, from which the appearance of gain is alone calculated to awaken them, have the greatest aptitude to manufactures, agriculture, navigation, and the building of ships. Already had cotton manufactories been established at Manilla, and succeeded. Already had it been frequently in contemplation within the century to enliven the colony by means of a company.

In 1733, the minister Patinpo proposed the establishment of a company, which was to have a duration of twenty years, and to which privileges were to be granted which appeared incompatible with the laws of the Spanish Indies. It was not, however, from the inflexible council of the Indies that the opposition proceeded. The court of Madrid was obliged to yield to the representations of the maritime powers, who maintained that this establishment was contrary to existing treaties, which stipulated that Spain should not trade to India by the Cape of Good Hope.

In 1767, Musquiz, minister of finance, in other respects by no means of an enterprising spirit, conceived a bolder project still, which was that of forming a company, composed half of French and half of Spanish, to trade to the Philippines; a trade of which the French would have reaped the principal advantages, by amalgamating it with that of her East India Company. The Duke de Choiseul, who was fond of the grand, who as well imagined that his ascendancy over the Marquis di Grimaldi would make every thing practicable, received the proposition with enthusiasm; nothing, however, resulted from the plan.

It was renewed in 1783, but in a different shape, and at the instance of three different persons. The one was M. d'Estaing, who was desirous of repaying, by proofs of zeal towards Spain, the grandeeship with which she had invested him. Shortly after, the Prince of Nassau Siegen, who, in his voyage round the world, had acquired some grand ideas, proposed to enliven the Philippines by attracting colonists from Europe, by opening one of the ports of these islands to the Chinese, who require nothing better than an asylum in this quarter, and by establishing a sufficient force to check a Mahomedan nation of pirates, called *Moors*, which infest the shores of the Philippines, and which Spain was unable to destroy, notwithstanding she consecrated annually 200,000 piastres towards carrying on a war against them. He offered to preside himself over the establishment; but his offer was coolly received, and it fell to the lot of M. Cabarras to succeed, where so many before him had failed.

Galvez, whose uneasy jealousy had insensibly become accustomed to the sight of a young Frenchman applying himself to the regeneration of his country, felt inclined to concert with him that of the Philippines. They took advantage of the tendency of the

Spaniards towards useful enterprizes, to cause the project of a direct trade between Spain and the islands to be adopted.

Circumstances were propitious. After divers fluctuations, credit and confidence seemed to be consolidated, and the Spaniards began to accustom themselves to risk adventures. Monied men became less fearful, gave at length an employment to their capitals, which mistrust and custom had prevented them from putting to use. The company of the Caraccas was on the point of being dissolved, and its share-holders receiving back their investments, were anxious for an opportunity of replacing them to advantage. This was therefore the fittest time for the establishment of a new company, which, undertaken under the most happy auspices, might inspire confidence and a desire of gain. The plan was discussed and approved of, in July 1784, in a junta composed of different members of administration, and at which the minister of the Indies presided. It was proposed to form a capital of eight millions of hard dollars, divided into 32,000 shares, each of 250 dollars, and to employ this capital in trading from Spain to the Philippines. The advantages which Spain would have over the other European states, in carrying immediately from Mexico to these islands the piastres which other nations could not convey thither but by a prodigious circuit, were enumerated. It was attempted to be proved that Spain, thus importing from their source the merchandizes of India, so much sought after in Europe, would receive them upon better terms, might furnish them to her colonies and European subjects, and at the same time find a market for them in other nations.

The plan approved of by the junta received the sanction of the King, who as well as his family took an interest in it, and means were immediately sought for to carry it into execution. In it was placed, as we have formerly observed, 21,000,000 of rials, arising from the excess of the value of the shares in the bank; and that the ardour which seemed to be awakened might not be abated by delay, directors and other persons were immediately named for the new establishment, and the patent of its institution was prepared and published.

It stated, that the vessels destined to this commerce should sail from Cadiz, double Cape Horn, put into the ports on the coast of Peru, and thence take piastres sufficient to make their purchases, cross the South Sea to the Philippines, and bring their returns immediately to Cadiz, taking their course by the Cape of Good Hope.

This precipitate zeal, which seemed to be a contrast to the supposed slowness of the Spaniards, and which rather exhibits a mixture of French spirit, was seconded by a circumstance which happened very opportunely. The company of the *Gremios*, of which we have several times spoken, this company, which speculates in every quarter, which obtains any favour, any privilege, and any commission it requires from administration, but which of late is open to the charge of being more attentive to making the fortune of its agents, than to the security of the funds with which it is entrusted; the *Gremios*, I say, had already sent some ships to the Philippines; and notwithstanding they had not succeeded, were preparing to make another experiment, when the plan of the new company was under consideration.

The *Gremios* were offered a part in the project, and had declined accepting the offer. They hastened the departure of the vessel which was preparing for Manilla; but the elements, more favourable to the views of the minister than their intentions, soon obliged it to return to Cadiz, after having received considerable damage. To have repaired and refitted it would have been expensive, and must have required time. Government offered to purchase the vessel and cargo, and the proposal was accepted. Thus was the first expedition undertaken by the Philippine company, at the very instant of its establishment.

Like

Like all new establishments, this company had some enthusiastic admirers, and some bitter censors. These could not conceive how Spain, which had colonies much nearer to her, and which were destitute of population and industry, could think of improving first her most distant possessions. It was a matter of surprise to them, that the management of trade which was to extend its branches to the most distant parts of Asia, should be entrusted to three directors, not one of which had ever doubled the Cape of Good Hope, and who had no other knowledge of the East Indies than what might be looked upon as doubtful and incomplete. They thought it certain that Spain could never advantageously enter into competition with nations who were experienced in the traffic, and possessed all the benefit of priority. They looked upon this enterprise as no other than an additional outlet for those metals, of which Spain is but a depositary for an instant. In India every station was already occupied; every port, every counting-house, every market was possessed by one or another power. Was then the Philippine Company to carry its speculations to China? In that case, at the very outset she would have to contend with rivals tremendously formidable. And what, at any rate, could they draw from that country? Tea? It is hardly known in Spain; and other countries possess the means of importing it themselves, as well as of preventing any supply through her bottoms. Porcelain? This is a cumbersome article, and would find but little demand. Silks? Would she distress the manufactories established at home? Of these different conjectures the latter appeared to be the most reasonable; and, consequently, the patent had scarcely made its appearance before the silk-weavers of Catalonia made the most earnest representations to government, and pressingly petitioned against the measure.

Nothing can be deduced from the bad success of the first expedition. It was the consequence of a circumstance which will not again occur. Galvez, constant in his plan of directing arbitrarily whatever belonged in any shape to the duties of his administration, in the interval of the arrival of the commissaries of the company at the Philippine Islands, gave the management to the governor. A stranger to commerce, the only articles which struck him as proper to take from China were tea, muslin, and other merchandize rejected by other nations; so that as a consequent result of this ignorance, the first cargo remained at Cadiz not entirely sold even in 1792.

The succeeding expeditions were more fortunate. Of three vessels which sailed together, one, it is true, met with damage, which it repaired at the Isle of France; the two others however happily returned to Cadiz at the end of 1787, where their cargoes were bought up with avidity, and some articles of them sold at 50 per cent. above the value at which they were rated upon their first arrival. Malevolence would not take this momentary success for a prognostic of its future welfare; it attributed it to the novelty of the matter, and the small quantity of merchandize brought by the company; and maintained, not without some probability on its side, that if a taste for these articles became established in Spain, they would be furnished at a cheaper rate by smugglers.

It surprises and excites one's indignation when jealousy and envy, finding shelter in the breasts of little minded men who accidentally fill eminent and commanding stations, sacrifice the public good to the gratification of their invidious appetite. Larena, maliciously disposed towards the founder of the Philippine Company, entertained a similar aversion for the establishment itself; and contraband trade, in consequence, met with an abettor in the person who should have been its most inimical opponent. He allowed all merchants to import muslins on the same terms as the Company. He imposed a duty of 23 per cent. on worked or printed India goods which were brought from Canton. This was giving these goods, which are vastly inferior to the manufactures brought from

from the Coromandel coast by the other nations of Europe, a rivalry which could not fail to be highly detrimental. It is true, the importation of goods of a similar description from any European port was strictly prohibited in Spain, but at the same time it is well known, that there is no merchandize whatsoever but may be introduced into the country for a premium of 12 per cent. Such Spaniards therefore as might prefer Indian muslins would have an advantage of 11 per cent. in purchasing those which might be smuggled.

What chance of success with such opposition to its measures could there remain with the Company? Notwithstanding this, it still maintained its ground. In 1792 its capital was yet entire, and its shares, after having fallen to a discount of 50 per cent., had again risen to par. The directors had produced their statement of balance, and satisfied the proprietors that, allowing the stock to be sold at a loss, and computing for several casualties, there yet would be a profit left.

In 1795 the Company had made a profit of 22,000,000 of rials, £250,000 sterling; and the three dividends which it has hitherto made in 1793, in 1795, and 1796, have been at 5 per cent. each. Government, in order to compensate for non arrivals, latterly granted it permission to introduce into Spain from European markets the value of 9,000,000 of plain India muslins. It has hitherto employed in the trade sixteen vessels of from five hundred and thirty to eight hundred and eighty tons; fourteen of which have returned to Cadiz, and three are at sea. Besides these the merchants, on account of the Company, have made seventeen expeditions, as well to the Caraccas, and Murucaybo, as to Lima, all of which have arrived safe; and in 1796 they had a very profitable year from the re-sale of the returns of American merchandize and cocoa.

This apparent good fortune does not however prevent many impartial judges from auguring ill of the establishment; and without participating in the animosity of the enemies of its founder, may it not even now, as it was in 1784, be regarded as more hurtful than beneficial, more brilliant than solid? It will doubtless be obliged to abandon the importation of tea, difficult to be disposed of in the North, and more than ever so in England; it has no market in the middle of Europe, and can only find one in Spain by becoming a substitute for chocolate, and thus injuring several colonies whose prosperity is of more consequence to Spain than that of the new company. Would not the sales of its silk be injurious to the national manufactures of that article, which are at present in a flourishing state, but which require assistance rather than discouragement? And as to its muslins, would it not be more advantageous to Spain to manufacture the raw cotton which she extracts from her colonies, and thus employ her idle hands at home; than to tax herself by contributing to the nourishment of distant industry, in order to satisfy the expensive caprice of her European subjects?

Spaniards, allies, open at length your eyes to your true interests. The structure of your prosperity is at least begun. The ground is cleared from the rubbish with which it had been covered by two ages of ignorance and bad calculation: the plan is sketched out; be careful of the foundation; there will afterwards be time enough to attend to the embellishment of the front.

What government has effected for some time back for the benefit of Mexico, is at least traced after a better plan, and undisputed success has crowned its efforts. Galvez entertained a particular predilection in favour of this vast and rich colony, the theatre of his activity, his talents, and some of his extravagances. To him, in great measure, is owing its flourishing state, which not only has tended to benefit the metropolis in return, but has extended its influence to foreign nations also; since the Mexicans, increasing in wealth and population, have become proportionably anxious for the enjoy-

ments of the comforts and luxuries of the whole world, and thus furnish a daily augmenting market for the productions of European industry.

Galvez patronized the culture of wheat in this province; and for twenty years past its growth has been equal to its consumption; and may in time become adequate to the demand of the whole of Spanish America.

Tobacco, which he introduced into two districts adjoining the capital, has become in a few years the principal source of the revenue which the metropolis draws from its colonies.

The miners of Mexico especially are highly indebted to Galvez; and, as a pledge of gratitude, have settled on him a considerable annuity, reverfible to his descendants. For some time the mercury of the mines of Guancavelica, at first so abundant, were no longer fufficiently productive for working the mines of Mexico. That of Almadin, the last village of La Mancha, on the confines of the kingdom of Cordova, had almost fingly fupplied them. Galvez, by improving its works, procured a much larger quantity from them. Before his miniftry it yielded no more than feven or eight thousand hundred weight annually; he doubled its produce, and made an arrangement with the miners by which the hundred weight, which formerly ufed to pay 80 piaftres, was afforded them at forty-one. The confequence was a notable augmentation in the produce of their mines. In 1782 they already yielded 27,000,000 of piaftres, and would have afforded 30,000,000, if there had been fufficient mercury, but at this period a defect in the conftruction of the galleries of the mines of Almadin had occafioned an almoft total inundation, and fufpending the working of it, the Spanifh government in 1784 concluded a treaty with the Emperor of Germany for fix years, by which Spain was to be furnifhed with 6000 cwt. annually, from the mines of Idria in Auftrian Iftria, at 52 piaftres per cwt.

The miners have thus obtained the means of continuing their work, which has of late years been more productive than ever, happening very opportunely for affifting Spain to bear the expences of her war with France.

It is not eafy to determine with exactitude the quantity of gold and filver which is annually collected from the whole of the mines of Spanifh America*. Thefe metals are coined at Lima, Santa Fi, Carthagená, and particularly at Mexico; but fome is exported in bars either legally or by contraband. It would feem however that the quantity might be calculated from a knowledge of the amount of the duties which are paid upon the whole of the American mines. But thefe duties have materially varied fince the conqueft of the country, and are not alike in every part of Spanifh America.

At firft, a fifth part was exacted from all the mines, except a few which were taxed as low as a tenth, and fome even a twentieth part.

In 1552, Charles V. caufed an additional duty to be added of $1\frac{1}{2}$ per cent., as a payment for the cafting and effaying, a duty known in Peru by the name of *Cobos*.

At a later period the fifth part levied formerly, and which the greater part of Europe ftill imagines to be in force, was reduced to a tenth for Mexico and Peru; and for the viceroyalty of Santa Fi to a twentieth of the gold, the only metal which it has produced for a long time back, the duty of *cobos* ftill continued in each of thefe viceroyalties.

In 1777 an alteration in the duties took place as far as regarded gold, which throughout all America was taxed at no more than 3 per cent.

And, laftly, filver mines being found in 1790 at Santa Fi, they were affimilated with thofe of Peru and Mexico.

* Compare this with the laft note of Chapter VII.

The sum of duty paid therefore on silver is $11\frac{1}{2}$ per cent, and on gold 3 per cent. only. From these duties, by knowing the amount of the King's duties, one might be enabled to ascertain what is the amount of the productions of the mines to a nicety, but with the returns which are brought to Europe on account of the King, other duties paid in America are confounded; such as the customs, the profit on the re-sale of certain objects, such as mercury, paper, &c. Hence it is clear, that the real annual produce can only be identified by those initiated into the arcana of finance.

In order, however, to form a near conjecture, the following data may be added to those which we have previously given.

It is ascertained that, on an average of late years, Mexico alone has yielded from 20 to 25 millions of piastres; that, at Vera Cruz, one fourth part more of metals is embarked than at all the other ports together, including Lima, at which port one half of the metals are shipped, produced elsewhere than in Mexico. Taking therefore the product of the mines of this latter viceroyalty to be no more than 20 millions, the rest of America will furnish fifteen, of which seven and a half will be the portion afforded by Peru.

From this calculation it follows, that of late years the mines of Spanish America will have yielded annually 35,000,000 of dollars; an amount, the enormity of which would almost make me doubt of the exactitude of the data, notwithstanding the source from which my information is derived. If however, as appears to be the case, the produce of the mines continue annually increasing, should we not have room to be alarmed at the mass of circulation which it must occasion in Europe, if there were not a trade to Asia and China to absorb the superfluity?

This progressive increase is without doubt profitable to the individuals to whom the mines belong, whose revenue increases with the produce. But is it equally beneficial to Spain considered as a nation?

This weighty doubt full well deserves a question.

Supported by the evidence of the last century, many well informed strangers would not hesitate in answering this question. They would say, (and meet with more than one good citizen beyond the Pyrenees of their opinion,) that this excessive multiplication of currency opposes the actual disposition of the Spaniards to manufactures; that the price of every thing as well in Spain itself as in other countries must keep pace with the increase of coin; that if Spanish industry be so far exerted as to retain at home this augmentation of currency, at present employed in paying the balance of trade to foreigners, the consequence will shortly be that the enhancement of the price of labour will again put a stop to industry in the midst of its career, and cause it to retrograde in an everlasting circle, whose rounds it will never be able to exceed.

Upon this principle one would advise the Spaniards thus: "Far from attempting to extract from your mines the whole of what they are capable of producing, rather let a part of them be closed: restrict the exportation of your metals to the old continent to the quantity necessary for replacing that diminution which insensibly takes place, the consumption which luxury makes thereof for furniture, and what the covetous hoard up, either in Europe or in Asia. Follow the example of Portugal, which limits the digging of its diamond mines, in order not to lessen their value; and that of Holland, which burns the surplus of her spices as soon as her absolute demands are answered. In the silver of Mexico behold your diamonds, your spices. If you treble the amount of their productions, your miners, whose strength might be better employed, will undergo more labour, but make you none the richer. You will have as a consequence to pay a triple price for foreign manufactures which you cannot do without.

To these arguments, certainly specious, this is the answer in Spain: "For our part, we see nothing alarming in this increase of currency: in the first place, the revenue is benefited by it; and, while all the other states of Europe are employed in augmenting their revenue, which in this enhancement they find the means of bearing up against the expence of grand enterprizes in peace as well as in war, by what fatality is it, that Spain alone should meet her ruin in what causes the prosperity of other states?"

"We may say the same of our manufactories. Should they increase in proportion with the augmentation of the revenue of our mines, our currency will at that rate become the more abundant by the addition of those sums which we have heretofore been

pay for foreign manufactures, as well as the surplus of Mexico and Peru.

But we see nothing to intimidate; we wish rather to know which are the most abundant currencies. Are they not England and France? and do they not possess the most abundant currency? Of what consequence is it from

the produce of our mines and our industry, our wealth will be in the hands of great capitalists, who will embellish our towns, and our fields; and our public establishments, of which, in critical cases, the state may borrow money at a less burthenome expence than heretofore. We are well aware that a period may arrive when our prosperity, having attained its acme, may decline; a period when our artisans and manufacturers may become so affected as to render all recourse to foreigners for supply no longer necessary; if, in such a state of prosperity, the produce of our mines still continue to augment without any channel for its passage from us; assuredly in such a situation, the currency may be looked upon as chimerical, would carry with it an unavoidable ruin. The excessive price of manual labour in Spain would invite foreign manufactures. In spite of every prohibition; the national manufactories would be at a standstill; their useless hands by degrees would disappear for want of employment, and give way anew to depopulation, idleness, and poverty. At present, the circumstances which would justify such an assumption, danger condemn either our manufactures, or our miners to amiss to draw from this double source the means of our future prosperity.

Whether this reasoning be just or no, it has formed the base of the plan in Spain for several years. She is persuaded that her greatest splendor is to be derived from the full activity of her manufactories, and the abundant productions of her mines.

Experience hitherto appears to establish the excellence of her plan, but is it well adapted to the position, manners, and political interests of Spain? Are there no other means of enlivening at once the metropolis and the colonies? Repeatedly have schemes been proposed which had this grand object in view. I shall say nothing of one for which neither Spain nor any other European power is yet ripe. I shall not observe that, following the dictates of wholesome philosophy, the court of Madrid ought to proclaim the independence of its colonies, and take advantage of the enthusiasm which this act of generosity would not fail of exciting to establish between the two countries treaties of friendship and commerce, much more solid in themselves than the ties stipulated in treaties formed upon interest and intrigue. No, there were no such painful efforts at any time proposed to Spain.

About ten years ago a project was proposed to the court of Madrid which would have entirely changed the face of the commercial world to the advantage of Spain. The project was not to cut through the isthmus of Panama, as more than once had been in contemplation, but to open a communication between the gulph of Mexico and the South

Sea; and thus at once resolve the problem of the most easy method of shortening the commercial correspondence between Europe and the industrious and fertile parts of Asia.

Besides the old scheme of joining the two seas by means of the river *Chagu*, which is navigable as far as *Cruces* within five leagues of Panama, there was a second which should effect this junction by a communication cut between the rivers *Chamaluzin* and *San Miguel* in the gulph of Honduras. Both the one and the other in the reign of Philip II. had been found impracticable. That which was proposed in the reign of Charles III. seemed to have obviated every objection, and united every advantage. It consisted in profiting by the *Rio San Juan*, which has its source in the lake of Nicaragua, and empties itself into the gulph of Mexico. This lake is separated from the South Sea by an isthmus no more than twelve thousand fathoms wide. Its neighbourhood abounds in commodities of every description, and would fit for ship-building. From the course of flowing rivers, the waters of the lake must necessarily be either above or in the level with both seas; there consequently could be no foundation for the apprehension of any flood or violent eruption.

The adoption of this plan would not only have rendered the lake of Nicaragua the center of the most brilliant commerce in the universe, but, at the same time, of the Spanish army and navy for the East Indies, and the market for all the valuable productions of both Americas.

This fine prospect did not dazzle the Spanish government. The authors of the project were French, and it began to be tired of seeing foreigners, and particularly Frenchmen, continually proposing grand enterprises. In this instance the inconveniences struck them now more forcibly than the advantages. It would for several years have attracted the attention of importunate observers to the most valuable, the central part of her American dominions. What facility would it not have afforded these unwelcome guests to implant all along this coast, and from the bottom of the vermillion sea to the straits of Magellan, the seeds of insurrection, which had been but too much encouraged already espousing the cause of the free Americans? What plenteous means of stocking all her colonies with contraband articles, and particularly those who, more civilized and wealthy than the rest, had a greater taste for, and superior means to purchase the luxuries of Europe? On the other hand, if the execution of this project were really to promote the splendor and force of Spain in the New World; had she the right to flatter herself, that the other powers of Europe would tacitly suffer it to advance to its completion? And in this last position would she not have rather been working for dangerous rivals than for herself? Could she expect to reserve exclusively for herself the enjoyment of communication? She had no longer the bulls of Alexander VI. to oppose to the navigating powers, or the cupidity of merchants. The passages must consequently be kept open to all powers. This would be therefore granting to all a transit at all times through the center of her possessions, and furnish them with an opportunity of stopping and residing there under various pretences. What advantages could compensate for the inconveniences of a similar super veyance? The nations whom nature has condemned to such a position, such as the Turks with respect to the Dardanelles, and the Bosphorus of Thrace, must necessarily submit to their fate; but surely it would be the very height of folly in a nation to create for itself such a pregnant source of quarrels and danger.

Such, without doubt, were the considerations which prevented the court of Spain from countenancing the project of which I have given the outline. Doubtless it will, at some future period, be carried into execution, but it will be by a neighbouring nation,
by

by a new people who in the first effervescence of liberty and commercial genius, will break through the mounds which prevent its course, as they have already forced their way by the mouth of a great river to the ocean. Possibly it will fall to your lot, speculative inhabitants of Kentucky, to serve first the tea at your tables, and clothe first your wives and daughters with the rich dresses that you yourselves will have brought from India without making the tour of South America or doubling the Cape of Good Hope. But Spaniards, who have exhausted themselves in grand enterprizes, who are timidly circumspect and cautious as age; Spaniards could with difficulty embrace so bold an undertaking, particularly with a council for her Indian affairs, which religiously and obstinately maintains its ancient maxims, and a minister at its head essentially jealous and ever ready to take umbrage.

Spain has effected a great deal, in throwing off the yoke of many prejudices with which she was shackled, and which kept her and her colonies in a state of moral languor; in establishing manufactories, in making roads and beginning different canals, in having granted a sort of free trade to her Indies; in one word, in having produced a notable increase of industry, augmented the riches, and given a spur to the activity of her population. This is sufficient to refute by facts a part of the heavy blame with which the rest of Europe has been accustomed to load the Spaniards, the appreciation of whose character shall be the objects of the next chapters.

CHAP. X.—*Character of the People in general.—Some traits in that of the Spaniards.—High Spirit.—Gravity.—Slowness.—Idleness.—Superstition.*

IT is not an easy matter to delineate the character of a nation. Almost all representations of this nature may be likened to those portraits which, from a master's hand, and traced by a brilliant pencil, possess every other merit but that of an exact resemblance. It is not from similar descriptions that any idea of a modern people can be formed. Since Europe has become civilized from one extremity to the other, its inhabitants ought rather to be classed, according to their professions, than their country. Thus, although not all Englishmen, all Frenchmen, or all Spaniards, resemble each other, yet among these three nations such as have received the same education, lead nearly the same kind of life. Thus all their lawyers assimilate in their attachment to forms and litigation, all their learned in pedantry, all their merchants in cupidity, all their sailors in rudeness, and all their courtisans in fervility.

In order to produce a nation, the moral and physical physiognomy of the individuals composing which should be alike, it would be necessary that they should all be under the influence of the same climate, be similarly addicted to the same occupations, and follow the same worship. It would be requisite, if they were a polished people, that they should live under a firm government, and that the part which they might share in it, should give to their ideas, their passions, and even to the external expression of their frame, a certain uniform and constant stamp. The union of all these qualities alone could justify the picturing a nation by an individual indiscriminately selected. A single variation in either of the points noticed will be sufficient to vary the physical and moral features ad infinitum. Hence it were an easy matter to pourtray the character of the ancient Scythians, of pastoral nations, of the savages of Canada, and of all barbarous races, whose religion is simple, who have but few laws, and maintain but little communication with any other people.

Hence it is that the Greeks and Romans, in the happy periods of their republics, almost entirely devoted to the love of their country, liberty and fame; inhabiting a confined space, where the influence of climate was every where nearly alike; and each taking a part more or less active in the government; might be generally described by the same lineaments.

Hence that among modern nations, the English, Swiss and Dutch, would be nearer this uniformity; the first from that universal inquietude which fixes their attention upon government, whose operations are submitted to their inspection, from their insular situation which fits them generally for navigation and the speculations of maritime commerce; and from that national pride which is in some measure justified by their dominion of the sea, but feebly concealed anywhere. The Swiss from their geographical position, which until lately rendered them passive spectators of the troubles of Europe. The Dutch, who, in spite of the slight differences which before these late commotions existed between the modes of government in use throughout their seven provinces, had all of them a point of union in their attachment to liberty, in the nature of their territory, in their situation on the banks of seas and canals, whence must necessarily result an uniformity of occupations, taste, and even of passions.

But who can flatter himself with the idea of giving a good portrait of the whole German, Italian, and French nations? What a difference between the climates, productions, employments, laws and language of one province and those of another! Who would apply to an inhabitant of Westphalia the description of a Saxon or an Austrian; that of a Neapolitan to a Venetian; or that of a Fleming to an inhabitant of Languedoc?

The Spaniards are in the same situation as these three nations. There are in the inhabitants of their chief provinces such striking differences of climate, manner, language, habits, character, and even exterior form, that the portrait of a Galician would more resemble a native of Auvergne than a Catalanian, and that of an Andalusian a Gascon more than a Castilian. If the Spaniards ever had characteristic marks, applicable to all the inhabitants of their peninsula, it was when the Arabians, by establishing themselves in the nation, had stamped it with a particular impression, and notwithstanding the different causes which kept them separate from it, communicated a part of their manners, their noble, grand, and even sometimes colossal ideas; their taste for the arts and sciences, and every thing of which traces are still found in the provinces where they mostly resided. Then it was that the high idea the Spaniards entertained of their nation, and which was justified by circumstances, appeared in their persons; and gave them all a resemblance to the description of the present day, when represented grave, austere, generous, and breathing nothing but war and adventures. It was, in fine, when in their general assemblies, which they called *Cortes*, all took a part, more or less active, in the government; directing or watching its operations, and feeling more strongly than at present, that patriotism which acts so powerfully upon the opinions, affections, and manners, of those whom it animates.

But these three causes of uniformity in national character have almost entirely disappeared, and left the Spaniards more subject to the influence of climate, and the laws and productions of their different provinces; so that to describe them in their present state, they should be divided into Castilians, Catalanians, Arragoneses, Navarrians, Andalusians, and Asturians, and to each of these people should be assigned a particular portrait; a difficult and disagreeable task, which could never be completed without almost continually placing the exception by the side of the rule; in which it would be scarcely possible

possible to be exact without descending to minuteness, to be just without being severe, or an eulogist without appearing to flatter.

However, this revolution has not been so complete as not to leave many features, by which the whole Spanish nation may still be known. A part of its manners have survived the event by which they were changed. The influence of its climate has been modified, but not destroyed. In many respects the provinces have the same form of government. The court of an absolute monarch is still the center of all their good wishes and affections. All the modern Spaniards profess the same religion. In literature they preserve still the same taste, and copy the same models. In some instances they have retained a resemblance to their ancestors, and this is what I shall endeavour to point out.

At that period when Spain discovered and conquered the New World, when not contented with reigning over a great part of Europe, she agitated and convulsed the other by her intrigues or military enterprizes; the Spaniards were intoxicated with that national pride which appeared in the exterior of their persons, in their gestures, language and writings. As there was then some reason for this, it gave them an air of grandeur which was pardoned by those whom it failed to inspire with respect. But by a concurrence of unfortunate circumstances this splendour is no more, and the assuming manners which it palliated have survived its eclipse. The Spaniard of the sixteenth century has disappeared, but his mask remains. Hence that exterior of high spirit and gravity by which he is at present distinguished, and which have frequently recalled to my recollection two lines of one of our poets on the subject of original sin, notwithstanding the consequences of which the sublime station man was intended to fill is still easy to be known.

C'est du haut de son trône un roi précipité,
Qui garde sur son front un trait de majesté*.

The modern Spaniard still preserves in his air and gesture the marks of his ancient greatness. Whether he speaks or writes, his expressions have an exaggerated turn which comes near to bombast. He has an exalted idea of his nation and of himself, and expresses it without the least disguise of art. His vanity does not shew itself off with those pleasant exaggerations which provoke laughter rather than anger, and which characterise the inhabitants of one of the provinces of France. When he boasts it is gravely, with all the pomp of language. In a word, the Spaniard is a *Gascon who has put on the buskin*.

I am nevertheless much disposed to believe that the genius of the language may also be one reason for this pompous style. The Spaniards have not only adopted many words and expressions from the Arabic, but their language is impregnated, as it were, with the oriental spirit which the Arabians naturalized in Spain. This is found in all the productions of Spanish imagination, in works of piety, in comedies and novels. It is, perhaps, one of the causes of the slow progress of sound philosophy, since by every thing being carried beyond the truth, by the accumulation of images round the most simple ideas, and by favouring whatever borders upon the wonderful, the sanctuary of truth is surrounded with illusion and rendered as it were inaccessible.

But the loftiness of the Spaniard, which would be noble were it more moderate, and that gravity which always awes, and sometimes repels, are compensated by very estimable qualities, or are rather the source of those qualities. Individual as well as national pride, elevates the mind and guards it against meanness; and such is the effect of Spanish haughtiness.

* He is a King precipitated from his throne, who still preserves on his brow some features of majesty.

In Spain there are vices and crimes as well as in other countries ; but in general they bear this national characteristic. It is observable in the most obscure classes, in dungeons, and even under rags and misery. It balances, in a certain degree, the genius of the language, which is naturally diffuse, and in which the ear seems to be gratified by an accumulation of sonorous words, frequently mistaking multiplied expressions for a superabundance of ideas. Loquacity is commonly laconic ; it disdains detail and loves enigmatical expressions, because they are concise ; leaving room for thought, and sometimes for conjecture. Hence is it that the same Spaniards who, when their imagination is in the least warmed, display all the luxury of their language, are pithy when their mind is calm. Of this I might give a hundred examples, but I shall mention only two. I had occasion to speak to a Spaniard of the lowest class, and found him with a serious countenance caressing a little child. I asked him if he were the father ? A Frenchman of the same rank would have modestly answered, Yes, Sir ; or, at least, I believe so ; adding much more on the subject than I might wish to hear. The Castilian, without disturbing himself, or even receiving my question with a smile, answered me coldly : “ *he was born in my house,*” and immediately turned the discourse to some other subject. Another example of their Spartan shortness was afforded me by a French traveller. He met on his entrance into Castile with a shepherd, who was driving a flock of sheep. Desirous of learning what gave its exquisite quality to the Spanish wool, Frenchman-like, he loaded him with questions, and asked in a breath — If his flock belonged to that district ? what they lived upon ? if he was travelling ? where he came from ? whither he was going ? what period of the year he began his journey ? and when he returned ? The shepherd, listening patiently to his volume of questions, answered him coolly : *aquí nacen ; aquí pacen ; aquí mueren ;** and continued on his way.

This gravity, which is proverbial, is yet very wide of what it is generally supposed to be ; in fact it excludes in the Spaniards what we call affability. They do not anticipate, but wait for you. But this austere covering frequently conceals a good and benevolent mind, which the least examination may distinguish. Strangers to the unmeaning hypocrisy of French politeness, the Spaniards are sparing of professions. Their smile of benevolence is not merely a courtesy, for their heart in common opens with their features. How often have I been repulsed by the exterior of a Spaniard, remaining a long time without being able to conquer my repugnance, which was all that was necessary, to find in him, not an affected, but a real complaisance ; not that obliging manner which promises, but that which grants ! The Spaniards are, perhaps, in want of that urbanity, which is the result of what we call a refined education, but which too frequently serves as a covering to falsehood and dissimulation. They supply this by that unaffected frankness and good nature, which announces and inspires confidence.

The great among them have no *dignity*, if by that word be meant a circumspection that fears to provoke familiarity, and which looks less for affection than respect ; they make no mortifying distinction of classes, nor disdain to form connections among those beneath them in rank. They have no longer among them a Duke of Alba, a Don Louis de Haro, and a Penderanda, whose characters, displayed in the face of Europe, have undoubtedly contributed to propagate the idea still entertained of the imperious haughtiness of the Spanish nobility of the first rank, at least it is no longer or the description it was then. If some have still preserved the traces of it, in them it is less haughtiness than coolness, timidity, and embarrassment.

* “ Here they were born, here they feed, and here they die.” After the Spanish fashion it is a metrical reply of some beauty.

Not but there are *grandees* among them, and others, who, without possessing that rank, deem themselves descended from an equally illustrious origin; who entertain a lofty opinion of their race, and manifest it upon certain occasions, particularly when in presence of those who pretend to place themselves on a footing with them. The pride of *tutoiement*, of which we have spoken before, is an evident proof of this, which constantly exists; but this loftiness disappears among them when addressed by their inferiors who solicit favours: and is entirely lost at court. Here their dignity frequently stoops, even to meanness. Despotism, notwithstanding the cloathing of benignity in which for this century past it has been uniformly clad, seems to overpower it by its weight and make it almost contemptible. Stationed in its presence, the nobles meet with nothing but tiresomeness, and abasement, and have not spirit enough to seek by a removal for amusement and independence. Much more truly may it be said of them as was formerly of the nobles of France — “They might, if they would, be little sovereigns on their own estates, they prefer being lacqueys at court.” Exceptions to this rule are very rare and are consequently noticed. There are however some who prove that they feel, if not the dignity of their being, at least that of their race. I have noticed some who of their own accord banish themselves for some time from court, and prefer the appearance of being in disgrace to the shame of a mean condescension; and others bold enough to make use of somewhat sharp repartees. One of these who was most intimate with the reigning sovereign, when he was but Prince of Asturias, is remarkably short of stature. The prince was continually joking with him about it. One day, tired of having himself continually called little he replied with great coolness, and was heard without anger — *Séñor, en mi casa me llaman grande*. Sire, at home they call me great.

The wives of the *grandees* seem to have preserved more of the stiffness that is attributed to the nobility of Spain than any others. It is impossible for mortals to be more cold, more grave, or more insipid, than the greater part of these noble ladies; there are, however, five or six who do not participate in these attributes; I shall not mention their names, as I should be unwilling to sow dissention among these beauties, whose charms are the most pleasing ornament of the court.

In other respects, this gravity serves but as a veil in persons of every class to cheerfulness, which needs but to be excited. To prove this, I shall not have recourse to the Spanish theatres, where buffooneries are so well received; this would rather be an argument against my assertion, because it has been remarked, that theatrical representations, in nations famous for their gaiety, are more serious than those of a different complexion; as if the mind were most delighted with those emotions most opposite to its habitual state.

But in order to judge, whether or not the Spaniards have the vivacity I attribute to them, take them in their colonies, where they are at their ease; their repasts, even before the vapours of the food and wine have acted on the brain; their conversations then abound in sprightliness, pleasantry, and equivocal; all either the legitimate or illegitimate offspring of vivacity; and afterwards determine whether they be not more open, and humour better supported than in French societies. Undoubtedly he will say, that this vivacity is too noisy, and not courteous. But soul befall that delicacy which encourages tiresome insipidity. Let this cheerfulness, however, be or not be condemned by the caprice of fashion, it does not the less exist because our prejudices are different.

Similar observations may be made on other defects with which the Spaniards are reproached. If I have not quite absolved them from the charge of idleness, I assert again that it is the consequence of transient circumstances which will disappear with them. In

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fact, when we witness the activity which appears upon the coast of Catalonia, throughout the whole kingdom of Valencia, in the mountains of Biscay, and every where in short, where industry is encouraged, and commodities have an easy and certain sale; when, on the other hand, we observe the laborious life of the muleteers and calestieros, who courageously lead their mules and drive their carriages through the most dangerous roads; the husbandmen, who, in the plains of La Mancha and Andalusia, become hardy by their labours in the field, and which labour, the nature of the soil, the distance of their dwelling, and the heat of the most burning climate in Europe, render far more painful than in other countries; when we consider the number of Galicians and Asturians who, like our Auvergnacs and Limousins, seek far off from home their slow and painful means of subsistence; in short, when we perceive that the idleness with which the Spaniards are reproached, is principally limited to the boundaries of the two Castiles, that is, to those parts of Spain which are the most unprovided with roads, canals, and navigable rivers, and most distant from the sea; it is but just to conclude, that this vice is not an indelible stain, nor a general characteristic of the Spanish nation.

They have another defect which borders closely upon idleness; this is slowness; and from this it would be more difficult to exculpate the Spaniards. It must, candidly speaking, be allowed, that knowledge penetrates but very gradually in Spain. In political measures, war, and all the operations of the government, nay, even in the common occurrences of life, when other nations act, they still deliberate. Mistrustful and circumspect, they fail in as many affairs from slowness, as others from precipitation. This is the more extraordinary, as their lively imagination seems of a nature to be irritated by delay. But in nations, as in individuals, there is no single quality which is not frequently modified by a contrary one, and in the struggle, the triumph is ever on the side to which the mind is most forcibly disposed by the circumstance of the moment. Thus the Spaniard, naturally cool and deliberate when nothing extraordinary actuates him, is inflamed to enthusiasm, if his pride, resentment, or any of the passions which compose his character, be awakened, whether by insult or opposition. And his nation, apparently the most grave, phlegmatic and slow in Europe, sometimes becomes one of the most violent when incidents destroy its habitual calm and leave it to the empire of the imagination. The most dangerous animals are not those which are most prone to agitation. The aspect of the lion is grave as his pace; his motions are not without an object; his roarings not in vain. Let his quiet be unmolested, he cherishes silence and peace; but let him be provoked, you see his mane erect; his eye balls glow with fire; you hear his hollow roar; and acknowledge the lord of the forest.

I do not mean by this parody to insinuate that Spain is the lion of Europe, which, however, was the case in former times. I simply mean to maintain, that in her is evidenced more plainly than in any other nation, that qualities apparently irreconcilable may be united in the same character: such as violence and tardiness, cool gravity and extreme irascibility. This mixture is visible in two of his principal affections, his courage and devotion. With an appearance of equal calmness in each, the one in the character of the Spaniard swells into fury, the other into fanaticism. Not in me will those excesses so frequently ridiculous, and at times atrocious, into which he is led by his wrong conceived attachment to religion, not in me will they meet an advocate; nor at the same time will I in any way attempt to lessen the pretensions to esteem which are the natural right of his undisputed courage.

On the contrary I will allow that, with the exception of a few Spaniards of the present day, the nation is religiously credulous and attached to the mummery of the church, in one word that it is justly accused of superstition. It may even be said, and the ob-

servation

servation be taken in its full sense, that this disfigured bastard sister of religion has continued almost uninterruptedly either in possession of the throne, or hovering round the court. She reigned constantly in conjunction with the weak and sickly Charles II. She was a copartner with Philip V., a good and virtuous monarch but destitute of energy, pious and sincere but ever in the extreme. And notwithstanding the taste for splendor and pleasure, which characterized Ferdinand VI. she still was his colleague. Less rigid towards these three sovereigns and their successor than to the greater part of their subjects, she yet sheltered them from all pravity of manners; and so much so that the rare phenomenon was presented to the world of a succession of several kings who never fought for enjoyment in the arms of a mistress.

As to Charles III., simple in his manners, exemplarily regular in his private life, scrupulously just even in matters of policy, to the day of his death, as well in words as in deeds, he always paid his tribute to superstition.

It particularly belonged to the founder of the order of *St. Januarius*, whose motto is *in sanguine fœdus*, to place implicit credence in the liquefaction of the blood of that Neapolitan saint. An occasion once offered of his manifesting the blind belief which he had of this prodigy. I have heard him relate that while he reigned at Naples the miracle was all at once at a stand. The holy phial was shook in vain. Long was the cause of it sought for, at last it was found. It must be observed that the phial is kept within the shrine of the saint, but on one side, and separated by a partition from his tomb. A tradition existed at Naples that in order to cause the blood to preserve its liquid state, not the smallest communication must exist between the body of St. Januarius and his miraculous blood. Now upon examining the tomb minutely, a chink was found in the partition which separated the tomb from the phial. The damaged division was hereupon quickly repaired, and immediately the blood became as liquid as before—Let who will explain this wonder. One cannot however refuse it credit, for, as Lafontaine observes “Kings never tell a lie,” and of Charles III. perhaps more than any other might this be truly said.

This prince took delight in relating, perhaps a still more strange event. The reader may possibly recollect the danger which he ran in 1744, when an Austrian army, commanded by Lobkowitz, proceeded to Naples, with a view of dethroning Don Carlos, (himself,) and the good fortune he had of escaping at the battle of Velletri. The success of the day, according to the prince, was owing to a battery of cannon, fortunately placed at the end of a street, through which the Austrians were to proceed to seize him. The battery played upon them so efficaciously, that they were obliged to retire, and take another road, losing not only their prey, but the victory as well. At the close of the battle, His Majesty made enquiry, what faithful and well-informed subject he had to thank for the disposition of these protecting cannon. He was sought for with avidity throughout the army, and a great reward was promised him. Nobody appeared. Hence Don Carlos, and those who were with him, doubted not an instant, that the Almighty himself had placed the battery there; and this belief Charles III. carried with him to the tomb.

His faith, in the immaculate conception, was consecrated by an order which he instituted, to which he gave that title. He left his virtues to his successor for an inheritance, without forgetting among the number, that first of theological virtues, which seems to be one of the necessary attributes of those monarchs, called for distinction's sake *most catholic*.

It will readily be conceived, that Kings so pious as these must necessarily be surrounded by servants, and have at the same time a number of subjects, animated with

the same zeal for religion, and whatever relates thereto; and so far justice must be done the Spanish nobility, the ministers, and generals, to say that, in this respect, for by much the greater part, they strive to conform with their august model. There are few among the great but what possess relics among their jewels; or who ever fail to attend at mattins to chaunt their anthem to the virgin.

Of Galvez, (whom no one can charge with possessing a weak mind,) I have heard it related, that he was a witness to the following fact. Being once at Seville, he had the *felicity* to behold the body of St. Ferdinand. The air of serenity which was spread over his features so forcibly inspired devotion, that none could withstand its influence. An Englishman, who was among the spectators, and who previously had been accustomed to speak in the lightest manner of the ceremonials of the Roman catholic faith, was so much affected by the venerable aspect of the saint, that he burst into tears in the midst of the church, immediately became converted, and was afterwards among the most devout.—The same minister once also related before me, that when he was at Mexico, he saw the corpse of the first bishop of Guadalaxara, who died in *sanctitatis odore*. His body was preserved from corruption; drest in his episcopal robes, he seemed to be wrapt in peaceful slumber. At that time his beatification was in course of discussion; and certainly “there was,” said he, “ample reason for it. His whole life had been a tissue of miracles. Do but judge. Before he was called to the bishoprick, he was councillor of audience at Guadalaxara. A criminal process was instituted before this tribunal. The accused was judged worthy of death, and by every voice, even by that of the future bishop, the culprit was sentenced to die. But when the condemnation was presented to the judges, the holy man pertinaciously refused to sign it. It was insisted that he should. At length, urged so strongly, he observed,—“bishops may not sign a sentence of death.” “But you are not a bishop,” they replied—“I feel that I am,” said he.—At first it was thought his brain was deranged. They were undeceived when some months afterwards they learned, that on the very day of his refusing his signature, the Pope had made him Bishop of Guadalaxara.”

Are more general evidences necessary of the propensity of the Spaniards to superstitious credulity? It may be recollected that in 1780 the Spanish navy experienced a violent check in the roads of Cadiz. One of their squadrons was surprized by Rodney, and defeated in spite of the bravery of Langara. Four of his ships were taken by the English, called the *Phoenix*, the *Diligent*, the *Princess*, and the *San Domingo*. All those which escaped bore the names of different saints. The people did not fail to take notice of this, and as by a singular accident the *San Domingo* blew up at the instant of its being moored, they said that its patron chose rather to see her perish than pass into the hands of infidels.

I however wish it to be understood that I by no means imagine these remarks were made by the officers of this squadron. They do not all of them resemble Admiral Barcelo, who from a simple lighterman attained the highest stations in the navy, and who was used to say that for his part bravery was no virtue in him because he was invulnerable; and shewing his scapulary would observe seriously, that he had seen many a bullet while coming direct towards him turn on one side as it approached this talisman. There are it cannot be denied among all the different classes of the Spanish nation, people who are credulous in this way to the most ridiculous excess. But what nation ancient or modern is therewith whom the same reproach will not lay? The Greeks? The Romans? Their historians, Plutarch, Livy, Tacitus, that eminent philosopher Socrates, have they not all of them paid this tribute to human weakness? And was the mind of Pascal, among the most masculine that can be cited, entirely free from it?

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As for Racine, has he not given credit to, and related some of the miracles which happened at Port Royal? It is true, the Spaniards at the present epoch are more superstitious than the rest of Europe; although among them there are many, who, in consequence of their different education by travelling, and by making use of their reason, are far from sharing in the obloquy; nay, even among the clergy I have met with numbers, who possess very clear and just ideas of true religion.

But in those classes in which education is neglected, (and such are numerous,) the members of which have little external communication, and few means of acquiring real knowledge, superstition and fanaticism are carried to a far greater height than even in Flanders or Bavaria; for religion every where taking its dye from the character of individuals, must necessarily have ardent followers, in a nation remarkable for a lively imagination, and violent passions.

This mixture of strength and weakness produces even at present effects distressingly whimsical. At Madrid there is a church, in which, during passion week, the most fervent among the orthodox assemble in an obscure cell. On their entrance, long cords are distributed to each. They strip themselves naked to the haunches; and at a concerted signal they flog each other with sufficient violence to draw forth streams of blood. The silence observed during this barbarous ceremony is only interrupted by sighs of repentance, mingled with expressions of pain. The greater part thus make a truce with their licentious living. Unhappy wretches! they have none for witnesses to their voluntary martyrdom, but God and their conscience, and the next day they lye both to one and the other. They have resolution sufficient to punish themselves, they have not enough to reform their life; so that all this cruel superstition is labor spent in vain.

The capital, in course, does not enjoy this privilege exclusively. In some provinces the fun shines on these scenes. A man of great credibility assures me, that he was once present in a town of Estremadura, at the following event. He had acquaintance in this place with a young lady of the mildest manners, of an amiable and lively disposition, a person adorned with all the charms of her age and her sex. He had gone to see her on a good Friday, and found her with a smiling countenance, dressed entirely in white. He asked her the cause of this extraordinary apparel, on a day set apart for mourning and penitence. You shall see, was her reply. It was at the very instant that the disciplinarians were to pass by the quarter where he stood. She seemed to wait for them with impatience; at length they drew nigh. She advances to the window which was on the ground floor, and open. The penitents halt and begin their exercise. In an instant, her snowy robe is covered with the blood that spouts from their mangled shoulders. She seemed to be delighted at the sight of her robe, besprinkled with this rosy shower, and the motive of her white dress explained itself at once. I will suppose, for an instant, that gallantry had its part in this mimicry of penitence; that the lover of the young lady was among the number of the flagellists. Yet, does the scene therefore appear less whimsically barbarous?

These are some samples of Spanish devotion; but it is not in every part of the kingdom, that it is carried to such an extreme of folly. The enlightened, among the Spaniards, whose number daily encreases, are hurt at seeing it so deeply rooted. Within these last years, under the reign of the pious Charles III. some salutary reforms have been attempted with success.

Even in Madrid, a great number of those processions have been suppressed, called *cofrarias*, which almost at all hours of the day were passing through the streets to some church or other, the members of them chaunting unintelligible canticles; ceremonies certainly useless in the eyes of true religion, and which were without other consequence

than that of wearying passengers, drawing journeymen from their occupation, and mothers from their domestic affairs.

The government resists all attempts at encroachment on the part of the Holy See.

The property of the clergy is no longer looked upon as inviolable.

The misconduct of the monks and inferior clergy meets with condemnation, and severe measures are adopted for repressing it.

It begins to be felt, that a diminution of the prodigious number of convents is necessary to the regeneration of Spain.

Such are the steps taken by reason in Spain for purifying religion.

On the opposite side, (for I stand pledged to declare all,) the most inviolable respect is shewn to the meanest ministers of the gospel. They are met with in every house, and looked upon as an *Ægis*, under whose shelter men are protected from the anger of both man and God. When I passed through Valencia in 1793, at which time a Frenchman was held in detestation, some ladies of that nation owed their safety to the interposition of the priests, who hastened to their relief.

People stand by to let them pass, and give them the wall; and oftentimes on meeting them, persons of the highest rank respectfully kiss their hands.

If a priest be met with on foot, who should be carrying the viaticum, you are obliged to get out of your carriage in order to let him take your place, accompanying him on foot to the house of the sick person; there he is to be waited for; and when his office is finished, he is to be escorted back to the church whence he came. It is only after this that you obtain repossession of your carriage.

If the holy sacrament be carried any where, a bell is rung to announce it. All business then, all conversation is suspended; and every one falls on his knees till it pass by. Hence arises many a burlesque scene. How often have I seen the play interrupted all at once by the sound of the holy bell! Spectators, actors, however dressed, Moors, Jews, Angels, even devils, all without exception, turn towards the entrance from the street, fall on one knee, and remain in that posture as long as the sound continues to be heard.

At the doors of the churches, this singular notice is every day seen affixed. *Hoy se saca animas. This day souls are taken out of purgatory.*

Not a coachman, who mounts his box, but makes first the sign of the cross, and mutters some prayers, which are instantly succeeded by some of those energetic phrases with which he animates his couriers. Frequently, while thus employed without, his master within the coach is singing an anthem to the virgin, although very likely on his way to some profane amusement; some wits have even informed me, that if on mounting the staircase they should chance to meet a rival friar by the way, they entreat of him absolution before hand for the sins they are about to commit.

Respect for the cloth is carried so far as to cause the people to attribute to it a preservative virtue, even after death: in consequence, nothing is more common than to see the dead buried in the dress of a monk, and be thus carried to their last home, with their face uncovered, as is the practice in most parts of Spain. The franciscan habit is the favorite on this occasion; and the convents belonging to this order have a warehouse, and tailors, especially set apart, for supplying this posthumous wardrobe. So great a demand is there for these dresses, that a stranger, who had been some months at Madrid without being informed of this custom, and observing none but apparent Franciscans carried to the tomb, expressed his astonishment to me at the prodigious number of that order which the city must contain, and seriously asked, if I did not conceive,
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from the immense number of deaths which occurred among them, that their order, however numerous it might be, must soon become extinct.

The dress of the convent accompanies the Spaniard to the tomb, it is also nearly his earliest clothing. It is by no means unusual to meet with little monks of four or five years of age, playing the monkey tricks so common to that age in the streets. Nor is it uncommon for the parents, whose strange inclination is manifested by the dress they give them, to turn up the tail of the robe, in order to administer paternal correction to these innocent creatures, who are perhaps the only ones of the cloth that are actually submitted to discipline.

Certificates of having regularly attended confession, and observed the precepts of the church during Easter, are exacted from all the faithful, whether subjects of the realm, or foreigners; an idle measure in itself, since nothing is more easy than to obtain them without fulfilling the ceremonial which they testify; for they are sold the same as any other article of merchandize, and women of the town (who here have numerous visitors,) almost always have a quantity of those *certificates for the bearer* to sell, which they obtain at an easy expence, of what nature, and who the donors, may readily be furnished.

One of the most common gestures among the Spaniards of every distinction, is the sign of the cross. It particularly serves as a note of admiration accompanied by the expression of the word *Jesus*. At every flash of lightening they repeat the symbol of salvation, and even if they gape, they express it with their thumb upon the mouth; in short their every motion is in measure stamped with the mummerly of devotion.

If a person enters a house, unless he would pass for a heretic, his first exclamation must be: *ave Maria purissima*; to which there is always the response of *sin piccado concebida*.

Every year there is pasted on the church-gates a catalogue of such books, national and foreign, as the Holy Office has thought fit to proscribe, under pain of excommunication.

Lastly, that tribunal justly enough appreciated by the wiser part of the nation, is yet in esteem with the greater part. It yet follows the same formidable ceremonial, it yet has its spies even among the higher ranks, and sometimes its victims, &c. &c.

Let the truth be spoken out however, at the risk of wounding that self-love so easily offended in any nation, and which so generally is satisfied with nothing short of eulogy. The man does not calumniate who speaking of Spain describes it, as in many respects the country of mummerly, fanaticism and superstition.

CHAP. XI.—*Continuation of the portrait of the Spaniards.—Their bravery.—Remains of barbarism.—Their patience and sobriety.—Portraiture of their women.—Their dissolute manners, and the cause thereof.*

We have witnessed the influence of the character and education of the Spaniards of the present day, on their religious principles, let us now examine the effect they have on their courage.

The causes of its former active display have, for many years, passed away. The Moors are no longer their neighbours, whose proximity and difference of faith, exciting continually mutual jealousy and hatred, gave occasion for frequent wars, and numerous opportunities of nourishing and displaying the national prowess. If the Spaniard appears no longer liable to the same degree of fermentation, if he seem a-sleep,
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he yet may be awakened ; the least signal in fact, recalls him to himself. His fits of *boly* rage, indeed, are much more rare. The period, at which the name of infidel alone, was enough to transport him to fury ; that period, the age of Pizarro and Almagro, is happily past. Religious intolerance, if it be not entirely corrected in Spain, is at least accompanied more by ridiculous than atrocious forms ; and when they fight with *Musselmen*, they combat the enemies of their country, rather than those of religion.

They even begin to think that religion may allow of policy to treat as useful neighbours, those whom they have been accustomed to look upon as irreconcilable enemies. In Spain, as well as in other nations, the progress of knowledge and philosophy, though it may have been slow, has sensibly softened the manners. The traces of ancient barbarity disappear in gradual succession.

Assassination was formerly common in Spain. Every man of respectability had his assassins at command ; which were hired in the kingdom of Valencia, as it is pretended witnesses were not long ago in some of the French provinces. This dreadful custom was in some measure the consequence of the kind of weapon then in use. This was a species of triangular poniard which, concealed under the cloak, was drawn forth for vengeance in the moment of resentment. A stroke from it was much more dangerous than one from a sword, which is used openly, and requires some dexterity. This dreadful poniard was more to be feared than the common one known by the name of *rejon*. The use of these perfidious weapons is not yet entirely abolished, and furnishes a just ground for the charges which foreigners bring against the Spaniards.

It is seldom that the manners of a people are corrected by violent and precipitate means. In the reign of Charles III. the minister, Squillaci, made the sad experiment, now about seven-and-thirty years ago. Drest in a long cloak, and a slouched hat pulled over the face, a man with difficulty would recognize his best friend ; a dress like this in course favoured excesses, and particularly such as endangered the safety of the citizen. In order to abolish the use of them in Madrid, he had recourse to coercive means, and even open force. Satellites posted at the corners of streets, provided with shears, publicly clipped such cloaks as exceeded the length prescribed. He fancied he should find the Castilians as submissive as the Russians in the time of Peter the Great ; he, a stranger ! minister of a monarch who had passed the greater part of his life out of Spain ! what was the consequence ? The people mutinied ; the King was frightened, and the minister was sacrificed. The manner of dress so suddenly attacked, was in part continued after his disgrace ; but milder and slower measures, the example of the court, and those about it, added to the activity of a vigilant police, have considerably contributed to correct the evil. The species of mask, under the name of a hat, which encourages insolence by insuring impunity, is totally laid aside ; and the cloak, very convenient for those who know how to wear it, now favours nothing but idleness.

The use of the poniard still exists in some parts of Spain, especially in the southern provinces, but it is wholly confined to the lowest rank. Some bravoës make it a bugbear to the weak, and with the violent and passionate it is the instrument of immediate vengeance. The clergy have made it a part of their mission of peace and charity to disarm their parishioners. The archbishop of Granada, in particular, has with this view successfully employed the arguments of the pulpit. But these means have not had every where the same effect. The kingdom of Valencia, that country so highly favoured by heaven, where the beauty of the climate and the riches of nature should excite none but the milder passions, is sullied with murder. One of the prerogatives of the crown consists in pardoning annually one criminal condemned to death, provided his crime have a shadow of excuse. It has been remarked lately, that for seven successive years there

there has not been one criminal who could be recommended to mercy in the fatal list presented to the King, so atrociously premeditated had every crime appeared.

Poniards and assassinations are also still common in Andalusia, where the powerful influence of climate, when not counter balanced by moral agency, appears manifest. During the summer, a certain easterly wind (*Ehrunto de Medina*) causes in that province a kind of phrenzy, which renders these excesses more common at that season than in any other of the year.

But let Spain resume the appearance which nature prescribes; let roads and canals cross these districts which have hitherto been almost inaccessible; let a more easy communication render the vigilance of the agents of government more active and certain; let the progress of agriculture, industry, and commerce give employment to mischievous idleness; in a word, let the present plan of government continue to be executed, and it will soon appear, in this respect as in others, that the influence of climate will yield to such powerful causes.

The revolution in manners, within the last half century, evinces the truth of this prediction. It was not until the present century that two barbarous customs were by degrees abolished, which ought long before to have been proscribed by reason and humanity. I mean the *Rondalla* and the *Pedreades*.

The former of these is a kind of defiance which two bands of musicians give to each other. Without any other motive than that of shewing their bravery, they were wont to meet with swords and fire-arms, fire at each other, and then close with swords. Will it be believed that this custom still exists in Navarre and Arragon? And that a similar contest was issued in 1792, and a fight took place between two parishes in the suburbs of Saragossa.

That of the *Pedreades* has but lately been disused. This was also a kind of combat between two companies, armed with slings, who attacked each other with stones.

Such manners are equally shameful to those who retain them, and the government by which they are tolerated. However, as there is scarcely any vicious custom which has not its causes as well as apparent advantages, there are certain persons who are displeased with the abolition of these institutions, alledging that though they cannot be denied to be proofs of ferocity, they are equally so of courage, which they contribute to maintain among the people. The abettors of such paradoxes even regret the revolution, which the work of Cervantes operated in the manners of Spain, by throwing an indelible ridicule on those adventurers who, neglecting the duties of their station, and the care of their families, were used to create themselves dangers in order to enjoy the vain glory of braving them; who offered the protection of their restless valour to those who did not ask it, and whose importunate service was at least useless in a country where charity ever opens its hand to the wretched, and where the weak are protected by the laws.

It is thus that, by successive gradations, more the effect of time than wisdom, the manners of a people are reformed and softened. Those of the Spaniards have within the last century undergone, in other respects, sensible revolutions. Formerly, the point of honour, on which they were delicate to excess, occasioned frequent duels. Were proofs wanting, their comedies and novels furnish a sufficient number. At present their courage, of a more tranquil nature, is reserved for manifestation in time of war in defence of their country, without disturbing its repose during the mild reign of peace. So much is this the case, that during ten years residence in Spain I never once heard of a real duel.

On the other hand, the Spaniards have preserved their ancient virtues, patience and sobriety; the former renders them constant in their enterprizes, and indefatigable in their labour; the latter preserves them from excess, a vice too common in other countries of Europe. Without seeking, however, to diminish their merit, I must observe it is, in a great measure, the consequence of their physical constitution, and the quality of their food. Their robust and muscular bodies, dried and hardened by the active heat of a burning climate, are less acted upon by either a spare diet or a superabundant meal. The flesh of animals, at least in the Mediterranean provinces of Spain, contains, in a given quantity, more nutritive matter than elsewhere. Their roots, less spongy than in countries where water contributes more than the sun to their growth, are of a more nourishing substance. Strangers who go to live at Madrid soon perceive this, and if they yield to the appetite they may have upon their arrival, an endemial disease, called *Entripado*, a kind of cholic, which the physicians of the country only know how to treat, painfully informs them of their change of food and climate.

With respect to intoxicating liquors, the sobriety of the Spaniard proceeds in a great measure from nature, which, always employing means proportioned to her end, has bestowed on him a constitution analagous to the strength of the wines produced by the soil, whilst strangers cannot with impunity drink of them to excess. Of this I have seen repeated and striking proofs. Six years ago seven or eight servants, which the ambassador Montmorin brought from France with him, died miserably. They were accustomed to drink the wines of La Mancha in the same proportion as the light wines of France; the consequence was, they were perpetually in a state of intoxication, and fell away by inches; while Spaniards who lived the same as they, felt no ill effects from their mode of living. Nothing is more uncommon than to see a Spaniard inebriated with wine, although that which he drinks is more spirituous than French wines; and if a drunken soldier be seen in the streets of Madrid, one may safely lay a wager of twenty to one that it is a foreigner; and ten to one that it is a Swiss.

We may remark on this occasion, that sobriety seems to be the inheritance of the inhabitants of the south, as intemperance is that of those of the north. We may also observe, that the people who commit most excesses in drinking are not those whose soil produces the liquors by which they are inebriated, as if nature, which has given them the means of satisfying their thirst and appetite, and adapted their organs to the use of these means, intended to punish them for seeking, at a distance, the food and liquor she has created for others. These dispositions are undoubtedly deranged by other circumstances; but it is easy for an attentive eye to trace the intentions of nature.

The Spaniards will pardon me for considering their sobriety as a virtue of climate; this is but comparing them with other nations, and even all the individuals of the human species, who owe alike their qualities to their education, rank in life, habits, the examples they have before them, and a thousand other causes which depend not on themselves. It is still a great merit not to resist beneficial impulses.

The Spaniards have, besides, that of triumphing over influences which dispose men to certain excesses, and for which they are produced as an apology. I have particularly in view a depraved propensity, reprobated by nature, injurious to the fair, and too common among the people of the south. This is absolutely unknown in Spain.

Jealousy, another outrage on the sex, the object of our homage, seems also the consequence of the influence of a climate which communicates its ardour to the senses and imagination. This odious passion, formerly so injurious in its suspicion, cruel in its precautions, and implacable and sometimes atrocious in its resentment, is much weakened
among

among the modern Spaniards. If the lover be exactory, ready to take umbrage, and tormented by suspicion, on the other hand, there are no people in Europe among whom is found a smaller number of jealous husbands. The women, who were formerly hidden from the public, of whom it was scarcely possible to snatch a glimpse through the openings of those lattices, which undoubtedly owe their name to the vile sentiment which was the cause of their being invented *, now enjoy full liberty. Their veils, the only remains of their ancient servitude, serve at present but to shelter their charms from a burning sun, and render them more attractive. First invented by jealousy, they are now employed to very different purposes. Coquetry has converted them into one of its most seducing ornaments; and in favouring secrecy, they insure impunity to the stolen pleasures of love. The lovers who, under the balconies of their invisible mistresses, sighed without hope, and had nothing but their guitar for witness and interpreter, are banished to comedies and romances. Sieges are become less slow and difficult of termination, husbands more docile, and more accessible the women. Woman! who but at the word is sensibly affected? Who but is disposed to forgive their caprices, to submit to their cruelty, and indulge their weaknesses? You particularly, foreigners, who have sighed at the feet of a lovely Spaniard, when you remember your chains, do you not feel all these sensations? Shall I attempt to trace a feeble sketch of the object of your vows, and call again to memory your enjoyments? Or, if they have disappeared, from absence, from time, or inconstancy, which anticipates its effects, shall I endeavour to mingle some consolation with the bitterness of your regret?

The women of every country have particular charms by which they are distinguished. In England, by the elegance of their shape, and modesty of their carriage; in Germany, by their lips of roses and enchanting smile; and in France, by that amiable gaiety which animates all their features. The charm felt on approaching a Spanish lady has something of deception which is not easily defined. Her coquetry is more frank, and less studied than that of other women. She takes less pains to be agreeable to every one. She rather weighs the suits of her lovers, than counts their number; and her choice once made, a single one suffices. Or if she does not neglect her success, she is nevertheless above all grimace. She owes but little to the aid of the toilet. The complexion of a Spanish beauty is never ornamented with borrowed brilliance: art supplies not the colouring which nature has refused by exposing her to the influence of a burning climate. But how many beauties compensate for her want of colour? Where are finer shapes to be met with than with them? Where greater ease of motion, where nicer delicacy of feature, where a more sweetly tripping gait? Grave, and rather melancholy, at first, should one of these beauties cast on you her large black eyes, so full of expression, should she accompany her glances with a smile—insensibility itself must fall enslaved before her. But if the coldness of his reception discourage not her admirer from addressing her, she is as decided and mortifying in her disdain, as she is seducing where she allows of hope.

In the last case she does not make her lover languish long; but perseverance must survive enjoyment in Spain, and it is not to this country that the description of love, in a well known idyll is applicable;

“*Nourished by hope, it dies in midst of bliss.*”

The fortunate men whom she deigns to conquer, and who are called *Cortejos*, are less disinterested, but not less assiduous than the cicisbei of Italy. A total sacrifice is re-

* *Jalousie*, in the French language, signifies a lattice.

quired of them. They must give proofs of this at all hours of the day, accompany their *well beloved* to the public walk, the theatres, and even the confessional. But many a storm disturbs their serenity. A momentary distraction is treated as an infidelity. The slightest incident excites some apprehension. One would say that in Spain jealousy has deserted Hymen to take refuge in the bosom of love; and that it more particularly dwells with that of the two sexes which seems the rather calculated to inspire than feel this cruel passion. In one word, their chains are not so easy to be borne, as difficult to avoid. The Spanish beauty is rigorous in many respects; her caprices are rather haughty, and too obedient to the impulse of an ardent imagination. But that which is not easy to conciliate with her eternally varying fancies, is the constancy of Spanish women in their attachments. The intoxication they cause and experience, far different from all extreme agitations or affections of the mind, which continue but a short time, is prolonged greatly beyond the common term; and I saw, during my residence in Spain, more than one such passion continue constant till the parties expired of age. May not this be accounted for by a religious scruple, certainly ill understood, as most such scruples are? May not the conscience of a Spanish lady, sufficiently complaisant to permit her one gratification which offends her duty, be terrified at a succession of infidelities? In the first may she not possibly find an excuse for her conduct in human infirmity, in the irresistible wish of the heart, which inclined her towards one object, destined by nature to fix her affections? Would sin resume its ugliness at a successive infidelity?

It belongs to those who are acquainted with the female heart and conscience to judge of this conjecture. It is certain, that in Spain, more than any other country, both men and women appear to conciliate the irregularity of manners with the most scrupulous observance of religious duties. In many countries these excesses alternately succeed each other. In Spain they are simultaneous; and the women, in consequence of this strange mixture of religion and frailty, seem to aim less to prevent scandal, or conceal their conduct, than to establish a kind of equilibrium between their faults and their merits.

How many men have I known, who have led an extreme disorderly life, yet frequented public worship with an assiduity, which even true christians do not consider as an indispensable duty, who carefully observed every injunction of the church relative to abstinence, rendering its ministers at the same time almost degrading homage!

How many women abandoned to an attachment utterly inconsistent with their duty, surround themselves with relics, and bind themselves by vows to the performance of actions indifferent in their own nature, and scrupulously fulfil them.

I believe hypocrites to be very rare in Spain; but to compensate for this, the ridiculous association of certain moral improprieties with superstitious practices is more common there than elsewhere. Is this to be attributed to a want of knowledge, or the criminal complaisance of the confessors, who are thus prodigal of the indulgence of which they themselves stand in need? Or is it the climate which must serve as an excuse for some vices, as it is the cause of some virtues? And does this climate enforce the gratification of certain frailties too imperiously for consciences, scrupulous in other respects, to be terrified at compliance?

To endeavour to explain the dissoluteness of morals, is to acknowledge its existence. Yes, depravity of this description is carried to great lengths in Spain. Frequently does the sex destined by nature to wait for pleasure, invite to enjoyment with effrontery. It is not in this country unusual to receive written intimations of desires which one has unwittingly engendered; neither is this licentiousness restrained by the dreadful consequences that succeed it. That horrible present, which the new world has made to the old,

old, in Spain, has become hereditary in families, and by the degeneracy of many of those races which are termed illustrious, and the extinction of others, a fatal evidence is afforded of its baneful influence. This scourge, to which the nation seems to have become accustomed, is of the most alarming nature, when it affects a person born under a different climate: and if the thousand charms, in the beauties, whose attractions I take delight in celebrating, draw some irresistibly into their sphere, the dreadful apprehensions with which a foreigner must be inspired, who by experience or report becomes acquainted with his danger, may reasonably justify the prudence which some have the power of exercising, and excuse an escape from their sway.

This depravity, however, is far from being so general as exaggerating libertines are pleased to affirm; even in Madrid there are families whose conduct is exemplary, faithful husbands, and wives who are models of modesty and propriety; their daughters, although in general not reserved in their carriage, grant less than fancy is pleased to expect from their demeanor, for nothing is more rare than their anticipation of the rights of matrimony. If opportunities of purchasing pleasures, equally shameful and easy to obtain, are frequent for those who seek them, at least prostitution is neither so public nor impudent as in other countries. The police, by severely prohibiting its scandalous seminaries, obliges it to conceal itself, and sometimes pursues it to its secret retreats. And what is singular in a country where dissolute conduct is otherwise so common, in a country which contains so many rich idlers, one would in vain seek for those easy ladies, who unblushingly display in other countries the sumptuous salary of their lubricity. Among these great people, who in other respects make a trophy of the corruption which their opulence keeps in pay, a sort of shame presides in the midst of their irregularities, and mystery embellishes even their most disgraceful amours.

The severe virtue of the kings of the new dynasty can alone explain this modern singularity. At their court, there has always been an absolute necessity of concealing those weaknesses, which they did not excuse by their example: to incur suspicion only, would be acting with great imprudence: to make a show of them, would be the height of temerity. Charles III. in this respect was rigid, even to tyranny. I was present once, while one of the most eminent persons of his court denounced his own son, who had been seduced by the charms of a pretty actress; and requested His Majesty to have the lover confined in a castle, and his mistress in a house of correction; but it is not every young nobleman of the court of Spain who has so strict a father, nor does every actress thus expiate the passions she engenders.

To the honour of the fair sex of Spain, I shall farther observe, that women rigorously banish from their society those familiarities, which are considered as indifferent by other nations, where the senses, less quickly inflamed, betray less suddenly their disorder; and that this distrust of themselves is at least an homage which their weakness renders to modesty. Thus a woman would not permit the most chaste kiss to be given her in public; and those which are customary in our comedies, and of which no notice is taken, are entirely banished from the Spanish stage*.

But

* I remarked some years ago, at one of the theatres of Madrid, a minute trait, obnoxiously trivial, and which, but for its exemplifying this excessive delicacy, so whimsically allied to the grossest and most disgusting manners, I should scarcely venture to detail in a note. No traveller, who has passed through Spain, particularly Castile, can fail having observed groups of people, who, basking in the sun, amuse themselves in their laziness, by destroying the vermine with which their heads abound. Among lovers of this rank, the favoured youth, whose mistress deigns to benefit him in this manner, has a double pleasure on the occasion, not only does he get rid of troublesome companions, he, at the same time, receives a testimonial of the perfect devotion of the object of his views. It is necessary thus much should premise my anecdote. The little French opera of *Le Tonnelier*, (the Cooper,) being translated into Spanish, the scrupulous

But if a proper distance be kept they allow, and even provoke at times, those wanton tricks at which decency would elsewhere be alarmed. Double meanings however gross, the coarsest jokes, even downright obscenity, whatever the tongue can express is readily overlooked. I have seen ladies admit of, nay even themselves make, observations which men with the least regard to decorum would deem admissible only at orgies, and sing catches revoltingly indecent. When in what is termed *good company*, I have more than once been surprized with tales of rather more than a free description. I have heard some ladies unblushingly, and without taking the smallest pains to varnish their story, relate the secret detail of their amorous meetings, and appear astonished if perchance they should see the least embarrassment in the countenance of any of their auditors.

These delineaments, which I shall not be so unjust as to lay to the charge of all the Spanish fair, would not however alone prove the depravity of manners in Spain. Women, who permit themselves freedom of expression, and give the example of it, are certainly not on that account more seducing to persons of delicacy, but they are not more easily seduced. On the contrary, a nation not yet entirely civilized, may have in its language a kind of ingenuousness which renders expressions far from being entirely chaste; and I should be inclined to think that these modes of expression, shocking to the decency of other nations, would disappear were a more refined civilization, more precautions in the education of young persons, almost exclusively abandoned to the government of servants, even in the most distinguished houses, and especially were a better example, adopted. But can a young lady, who from the most tender age has been familiarised to the grossest expressions, who in companies, to which she is frequently admitted, hears applause bestowed on impudence, which disdains to throw a transparent veil over the obscenities in which it indulges; can one, whose ears are early accustomed to the indecent expressions which are permitted on the stage, and whose eyes repeatedly behold the wanton attitudes exhibited in the favourite Spanish dance, long preserve in her imagination and language that virgin purity which is, perhaps, the greatest charm of her sex?

Mothers of families, with what have ye not to reproach yourselves, who, given up to your passions, abandon your daughters to nature and chance. Future mothers, how ill do ye conceive your interest! A taste for employment, some care bestowed on the development of that disposition of which heaven has been prodigal to you, would make you rank among the happiest as well as the most enchanting works of creation! Alas! you are neglected, you are left to yourselves, and your corrupt attendants. You are, to our misfortune and despair, about to falsify the munificent intention of nature.

The character and manners of a nation can be known, but imperfectly, if regarded in their serious occupancy alone, or while under the dominion of the passions. It is much better seen in their entertainments, their games, and their fancies. Let us then view the Spaniards in these different relations.

pulous translator dared not hazard the furtive kiss, which forms its denouement. But what does he substitute? In the last scene, while the master cooper is occupied in the interior of his workshop, the journeyman enters by stealth, and sets himself on the ground, between the legs of the lovely Fanchette, whose delicate fingers are employed in lousing his fortunate rival. They are in this situation when the jealous old man comes, and detects the two lovers in the act of giving and receiving this unequivocal pledge of mutual affection.



CHAP. XII.—*Manners and customs of Spain.—Their dances.—Games.—Pleasures.—Re-
pasts.—Taste.*

NOTHING more contrasts with the pretended gravity of the Spaniards, than their favourite dance the *Fandango*; a dance, truly national, and full of expression, at which foreigners of delicacy at first take exception, but which they themselves become delighted with at last.

No sooner does the tune begin for the *fandango*, than every countenance becomes animated, and even those among the spectators, who by their age and profession are most obliged to gravity, have much difficulty in preventing themselves from joining in the cadence. It is related, and the apologue is certainly appropriate, that the court of Rome, scandalized that a country renowned for the purity of its faith, should not have long before proscribed this profane dance, resolved to pronounce its formal condemnation. A consistory was assembled, the prosecution of the *fandango* was begun, according to rule; and sentence was about to be thundered against it, when one of the judges observed, a criminal ought not to be condemned without being heard. The observation had weight with the assembly. Two Spaniards were brought before it, and to the sound of instruments displayed all the graces of the *fandango*. The severity of the judges was not proof against the exhibition; their austere countenances began by degrees to relax; they rose from their seats, and their arms and legs soon found their former suppleness. The consistory hall was changed into a dancing room, and the *fandango* was acquitted.

After such a triumph, it may be imagined that the remonstrances of decency have but little effect; its empire seems to be firmly established. It is, however, different according to the places in which it is practised. It is frequently called for at the theatre, and generally closes private dances. In these cases, the intention is no more than lightly indicated; but, on other occasions, when a few persons assembled together shake off all scruples, the meaning is then so marked, that voluptuousness assails the mind at every avenue; its incitements cause the heart of the modest youth to palpitate with desire, and re-animate the deadened sense of age. The *fandango* is danced by two persons only, who never touch, even the hand of each other; but when we view their mutually engaging allurements, their advances and retreats; when we observe the female, in the moment of her languor, announce an approaching defeat, and suddenly acquiring new courage escape from her conqueror, who pursues her, and is afterwards pursued in his turn; the manner in which these emotions are expressed by their looks, gestures and attitudes; it is impossible not to confess with a blush, that these scenes are to the real combats of the Paphean queen, what our military evolutions in peace are to the real display of the art of war.

They have in Spain, a dance yet more voluptuous than the *Fandango*, but it belongs rather to the provinces than the capital. It is the *Voléro*. Andalusia in particular appears to be its natural country; as it apparently was invented for the Andalusians of both sexes, a remnant of decency has banished it almost generally from private balls; it is however given on the stage*.

A third

* A German traveller, who has lately published a little work on Spain, in which he modestly pretends to have only gleaned after me; and in which there are many beautiful pictures, very highly coloured, but with rather too much sameness. Mr. Fischer thus describes the *Voléro*:

“The play finishes; the scene changes to an elegant saloon. The orchestra strikes up: the sound of castanets is heard, and from opposite sides of the theatre a male and female dancer dart forward, both dressed

A third dance peculiar to the Spaniards is the *Seguidilla*. The figure is formed by eight persons; at each corner the four couple trace, although but *en passant* the principal movements of the Fandango. A Spanish female dancing the *Seguidilla*, dressed in character, accompanying the instruments with castanets, and marking the measure with her heel with uncommon precision, is certainly one of the most seducing objects which love can employ to extend his empire.

The Spanish nation has a decided taste for dancing, and private balls are very frequent. They have a sort of president called *bastonero* whose duty it is to see that good order reigns in the midst of pleasure. It is his province particularly to take care that each of the party figures in a minuet, and to fix partners in such manner as to make as many happy as possible, and as few as can be avoided wretched.

As to public balls and masquerades, in the reign of Philip V. they were forbidden throughout all Spain. The Count de Aranda, who, while attentive to the police of the capital, did not neglect its pleasures, revived them; but these two amusements did not outlive the retreat of the minister.

The common people have some particular games, which have a tinge of the gravity of the nation. The one, a weak and miserable image of those which kept the force and activity of the ancients in constant exercise. It consists in throwing a bar of iron to a certain distance, and hence is called *El juego de la barra*.

Another game, a favourite with the vulgar, but still more insipid, is common to Italy as well as Spain. A number of men are seated round in a circle, and hold up in their turn two, four, six, or ten fingers, rapidly naming aloud the exact number of fingers held up.

Genteel persons have recreations of another kind. In those assemblies, where idleness collects parties together, their principal amusement consists in card playing, *hombre* is on these occasions their favourite game; this game is of Spanish origin, as its name announces, *hombre* signifying *man*, but the Spaniards call it *trifflilio*; besides at cards, they amuse themselves with a sort of game at billiards, called *juego de truecos*.

In general they seldom assemble to eat at each others houses. They are little acquainted with the innocent and healthful pleasures of the country. But few among them even are fond of the chase; of which the monarch and his family seem to possess the exclusive privilege. The amusements of the country appear to have no attrac-

tions dressed in the Andalusian costume, appropriate to the dance. At their entrance, they fly towards, as if they mutually sought, each other. The male dancer, stretches out his anxious arms towards the female, who seems as though about to abandon herself to his embrace; but, all at once she turns and avoids him. He, made angry, shuns her in return. The music ceases, they both appear irresolute, but the orchestra beginning, again sets them in motion.

"The male then expresses his desire with increased vivacity. The female seems more inclined to answer it. A voluptuous languor is depicted in her eyes, her bosom heaves more violently, her arms are extended towards the object which pursues her: but a fresh return of sadness robs him of her a second time; a second pause re-animates them both.

"The orchestra again plays up; the music increases the quickness of its measure, and assumes wings to overtake the velocity of their motions. Full of desire, the male rushes towards the female; their lips are half opened; she is again feebly restrained by a vestige of modesty. The crash of music redoubles, and with it, the liveliness of their movements, a sort of vertigo, a delirium of extacy, seems to possess them both: every muscle appears to invite and express enjoyment; their eye-sight fails. At once the music ceases, and the dancers vanish (if I may use the expression) in delicious languishment, the curtain falls, and the spectators recover their senses."

Such an animated description is more like an apology than a satire. It, however, is not wanting of exactitude. Some years back the *volero* was given at Paris; but decency had shaded its tints, and pleasure itself did not require they should be made more lively.

tions for the Spaniards. Their country-houses might easily be numbered. Among the many rich individuals who inhabit the capital, there are, perhaps, not ten who have a country retreat. With respect to the castles, seats, &c. so numerous in France, England, and Italy, and which contribute to the embellishment of the environs of their capitals, there are so few in the vicinity of Madrid and the rest of the Peninsula, that many travellers are of opinion the proverbial expression, *building castles in Spain*, is thence derived. This however is evidently an erroneous opinion from the number of castles in ruins found in most of the provinces.

The rich subjects of the kingdom therefore concentrate all their pleasures within the cities. Music is one of those for which the Spaniards have the greatest taste. They cultivate this art with success; not that their national music has made any great progress, for it has a particular character; it is to be found mostly in little detached airs, called, in Spain *Tonadillas* and *Seguidillas*; sometimes agreeable melodies, but of which the modulations are little varied, and prove that the art of composition is still in its infancy. In return for this they do the greatest justice to the grand compositions of Germany and Italy, which always form a part of their frequent concerts. They have many lovers of harmony, but few composers worthy of notice.

A young poet at Madrid, *Don Thomas Yriarte*, who died in the prime of life, produced a few years since a poem on music, wherein didactic dryness is compensated by several episodes and brilliancy of imagination. Connoisseurs assure us that the character of Spanish music in particular is there given by a masterly hand.

Balls and concerts are not the only entertainments at which the Spaniards assemble. They have also their *Tertulias* and *Refrescos*. The *Tertulias* are assemblies very similar to those of France. Perhaps more liberty reigns in the former, but languor sometimes establishes its throne there as well as in the midst of our parties.

Women in general seldom seek occasions to meet together; each aspires to be the center of a *Tertulia*; and exclusive pretensions undoubtedly contribute to banish from Spanish societies what we call *French gallantry*. Women are there admired, and even adored, as well as elsewhere; but when they fall of inspiring a lively sentiment, the men seldom pay them those attentions which our politeness prodigally and indiscriminately bestows upon every individual of the amiable sex. Not but the Spaniard possesses gallantry. Its subtle lineaments are strewed with profusion throughout the romances of the country, and in their comedies; but to a foreigner's eye it appears burlesqued by exaggeration; it has not those easy terms, the elegant expressions which is granted to be possessed by the French, given by those nations who are jealous of them. With them a pretty woman, who is not the object of a man's affection, is only a lovely creature, who expects, but does not exact, homage; and when paid her, the courtesan is thanked with a smile. Among the Spaniards, where she can manage to make herself respected, she is a divinity who must be worshipped. A sonnet or vau-deville is sufficient for one. The other must be addressed in the sublime accents and cadence of the ode.

Their *Refrescos*, the invention of luxury and greediness, contribute no less than the *Tertulias* to facilitate the intercourse of the two sexes. In general, these are only light repasts, prepared for persons from whom visits are received, and are as a prelude to the *Tertulias*; but on great occasions, when a wedding, christening, or the birth day of the head of a family is to be celebrated, the *Refresco* becomes an important and a very expensive affair. All the family acquaintance are invited; and, in proportion as they arrive, the men separate from the women. The latter take their seats in a particular chamber, and etiquette requires they should remain alone until all the company be assembled,

assembled, or at least until the men stand up without approaching them. The lady of the house waits for them under a canopy, in a place set apart in the hall, which, not yet entirely abolished, was formerly called the *Estrado*, over which is commonly suspended an image of the virgin. The appearance of refreshments, at length, enlivens every countenance, and infuses joy into every heart; conversation becomes animated, and the sexes approach each other. The company are first presented with great glasses of water, in which little sugar-leaves, called *Azucar esponjado*, or *rosado*, square and of a very spongy substance, are dissolved; these are succeeded by chocolate, the favourite refreshment twice a day of the Spaniards, and which is believed to be so nourishing, or at least innocent, that it is not refused to persons dangerously ill. After the chocolate come confectionary of all sorts, and all colours. People are not only cloyed with them in the house of festivity, but they put quantities of them into paper, and even into their hats and handkerchiefs. And a stranger admitted for the first time, to these kinds of festivals, in which intoxicating liquors only are spared, seeks to discover the sober nation and finds it not.

A ball or card-tables commonly succeed the Refresco; but it very seldom happens that the entertainment is concluded with a supper. This is always a very frugal repast with the Spaniards, and at which they rarely assemble.

Their cookery, such as they received it from their ancestors, is of a nature to please but very few people. They are fond of high seasonings; pepper, pimenta, *tomates*, or saffron, colour or season most of their dishes. One of them only has been introduced amongst strangers, and the French kitchen has not disdained to adopt it; this is what in Spain is called *Olla-podrida*, and is a sort of hotch-potch of every kind of meat cooked together. There is, however, generally a mixture in the Spanish cookery, except in some obscure families, attached to ancient customs; in most houses it participates of the French cookery, and in some this has wholly supplanted that of Spain.

Thus are the French every where imitated, whilst they are ridiculed, and sometimes detected. The modes of France have reached Spain as well as many other countries. French cloths, fashions and colours, are worn under the Spanish cloak. The veil is no longer worn for concealment but by the women of the lowest classes; for others it serves but to hide the disorder of their dress when they go out on foot. Except in this case, their head dress and whole attire are carefully adjusted to the French fashion. The Spanish manufacturers exert themselves to the utmost to serve the reigning taste, and to follow it through all its rapid variations, without the aid of our manufacturers; but they are yet far from being able to attain their end. Great cities, and even the court, tacitly acknowledge this by having immediate recourse to Paris or Lyons, as to the only true sources of fashions. In this respect, as in many others, the Spaniards who affect the *bon ton* confess the superiority of some foreign nations, and receive from them lessons of elegance. Their tables are served after the French manner; they have French cooks, house stewards, and valets de chambre. French milliners are employed to invent and make new dresses for the ladies. Their heavy inelegant equipages disappear by degrees, and are exchanged for those of England, or their French neighbours, which, however, latterly are imitated by the coach-makers of Madrid and elsewhere. They neglect no means of engaging French artists and manufacturers to settle in Spain.

This homage is not confined merely to frivolous objects. The best French and English works on morality, philosophy, and history are translated into the Spanish language. French literary works of mere amusement are for the most part those only, which have but little merit in the eyes of the Spaniards; and their taste, in this respect still appears far from inclining to change.

Their

Their imagination, bold to extravagance, finds French ideas cold and timid. Accustomed to exaggeration and redundancy, they are unable properly to value either justness or precision. The fine shades of French ridicule and manners escape their eyes, too much accustomed to caricature; and with respect to style, their ear, vitiated by the pompous profody of their cadenced periods, by the frequent and affected repetition of their sonorous words, can find no grace in accents which speak more to the mind than the senses; and the roundness of elegant periods is to them entirely lost.

What chiefly prevents a reform in their literature, are the models which they still admire and endeavour to imitate; these are distinguished by that bad taste which formerly infected all the nations of Europe, and to which the first literary men in France have paid an ample tribute, but on the wreck of which the master-pieces of the age of Louis XIV. have been erected.

Had French literature remained in the state it was when Ronfart, Marot, Benferade, Voiture and Balzac wrote, their very defects would still serve as models. What might have happened in France, had no improvement been there made in letters by a concurrence of circumstances, has happened to the Spaniards. Since the time of *Calduon*, *Lopes de Vega*, *Quevedo*, *Rebolledo*, and others, whose imaginations, though wild and licentious, were brilliant and fertile, no author with these splendid qualities, and at the same time endowed with that good sense which directs their use, has appeared in Spain. Letters have, for upwards of a century, been in the same state. The works of these men of genius, frequently extravagant even to absurdity in their conceptions, still continue models of style; and their example, without having produced any thing comparable with that which in them is justly admired, has served, and still continues to serve, as an excuse to every reprehensible irregularity of imagination, and all the violent bombast of false eloquence.

It is to the Spanish stage that this reproach particularly applies.

CHAP. XIII.—*Of the Spanish stage.—Of their Plays, both ancient and modern.—Defence of the Spanish stage and critique on the French.—Spanish versification.—Actors.—Little modern Pieces.—Majos, and Gitanos.*

IT would, however, be unjust to judge of the Spanish theatre according to the critique of Boileau.

It undoubtedly still suffers pieces in which the law of the three unities is flagrantly violated. But there are many Spanish pieces, in which it is not transgressed in such a manner as to be prejudicial to the interest. The Spaniards themselves condemn most of their heroic comedies, in which princes and princesses, from all corners of Europe, assemble without motive, as well as without probability, and are by turns either actors or the sport of the most incredulous adventures, relate, converse, and joke even in the most critical situations, and conclude by uselessly shedding their blood without giving occasion to a single tear. Although several of these pieces have original beauties, and all afford proof of the talent of the Spaniards for inventing complicated plots and dexterously weaving the *dénouement*, the Spaniards found not the much contested reputation of their theatre upon this alone.

But there are some of their productions which they justly consider as intitled to the admiration even of strangers. These are their characteristic pieces, which, though not so well conducted as the best French pieces of the same kind, and though they cannot boast the same accuracy in the choice of ideas and expressions, are generally pleasing

in the ground work, faithful in most of the characters, and shew an uncommon fertility of imagination in their authors.

The pieces which the Spaniards call *de Capa y Espada*, are those particularly which present an exact representation of ancient manners, and these comedies are the real sources to be resorted to in the study of them. It is in these pieces that the generosity by which their manners are still characterised, those flights of patriotism and religious zeal, which formerly rendered the Spaniards capable of the greatest efforts; the fallies of national pride, which the pomp of style renders so noble; that irritability with respect to the delicate subjects of love and honour, which made duels so frequent in Spain, before the causes which softened the manners of Europe had gained sufficient influence over the modern Spaniards; the sacrifices and ardour of hopeful love, the anguish of unhappy love, and the stratagems of thwarted passion are traced in the most lively colours. Such are the outlines of these comedies, of which the Spaniards are as fond as they were at the time they first appeared.

Their authors, of whom *Lopes de Vega*, *Roxas*, *Solis*, *Moreto*, *Arellano*, and particularly the immortal *Calderon de la Barca* are the most celebrated, have so established this kind of comedy by their success, that more modern authors, such as *Zamora* and *Canizaries*, who wrote at the beginning of this century, dare not attempt any other.

The Spanish theatre has nevertheless experienced some happy changes latterly: and although real tragedy, unmixed with matter unworthy of its noble nature, has long been entirely unknown among them; within this little time they have represented some of the best French pieces literally translated; such as *Andromache*, and *Zara*; and some modern authors have even ventured on tragedy; *Don Vincent de Huerta*, who is lately dead, wrote a piece called *Rachel*. The serious drama has likewise made its appearance on the Spanish stage, and the *Desferter*, and *Eugenia* from the French, have been favorably received, as well they are no longer strangers to what is termed noble comedy by the French; for example they have represented the *Misanthrope*, from Moliere, which met with great applause. Some authors of the country have recently hazarded pieces of this description. *Don Thomas Triarte* has given the public *El Senorito mimado* (the spoiled child), and *La Senorita mal criada* (the ill instructed Miss); *Moratin*, a young poet; who does honor to the literature of Spain, and who by order of the court travelled through the country for some years, in order to gather subjects from life, with which to ornament and reform the stage; *Moratin* has also written a piece in this style called *El viejo y la nina*, (Miss in her Teens and the Septagenary,) which was performed with great success at Madrid, and earned its author a considerable pension, a circumstance of which there have been but few examples in the world, and which excited considerable jealousy in many, but astonishment in every body. *Comella*, another young poet, has also produced several agreeable pieces, one among others, the bent of which (for the *genus irritabile vatum* belongs to all countries), was to ridicule his cotemporary.

But these successful essays have been insufficient to root out that bad taste which has been long combated not only by the greater part of their literary characters but as well by those Spaniards unacquainted with any other theatre than their own. Will it however be believed that there are some among them, who not only defend with warmth the Spanish stage, but rebut with usury the blame which all Europe is agreed in laying on them.

In 1749 *Don Blas Nafure*, the King's librarian, reprinting the comedies of *Cervantes*, thus expresses himself at the head of the work: "We may very safely affirm without rendering ourselves liable to that charge which is made against our nation of prizing it-

self highly while it thinks too meanly of others, that *we have a far greater number of plays, perfect in themselves, and written according to rule, than what the English, French, and Italian, collectively, can boast.*"

Much more recently, that is, in 1791, Don Pascal Rodriquez de Arellano proposed a work to be published by subscription, intitled, *Teatro antiguo Espanol arreglado a los mas principales preceptos del arte dramatica*, in which he promises divers dramas, or comedies, written by Calderon, Lopes de Vega, Solis, Moreto, Roxas, Hoz, and Tyrso, in which the three unities are observed, the style free from hyperbole and affectation, from vain subtleties, from the heterogenous mixture of heroes and clowns, from inequality of the personages, and from indecent episodes and quolibets. He thus proposed to make an ample apology for the nation as to this branch of literature; at the same time preserving in these pieces, in spite of so many suppressions and corrections, all the force, beauty of expression, and grace of the originals. Let Spanish critics decide, if he has kept his promise.

But what will appear more surprizing to readers conversant in French literature, a Spaniard of the present time, at least who is very lately dead, a Fellow of the *Academy of the Spanish language*, *La Huerta*, expresses himself in this manner on the dramatic genius and poetry of the French, in his preliminary discourse on the Spanish theatre: "A single spark from the brilliant fire visible in this divine poem, *La Pharsalia*, would be sufficient *to give warmth and life to the weak and palsied muses of France*, without excepting the Limousins, who placed nearer to Spain, received perhaps, on that account, in a slight degree, the influence of the enthusiasm and poetic talent characteristic of our nation.

"How is it possible" he adds "that this divine fire should animate the minds of men, born and educated in marshy countries, destitute of sulphur, salts, and substance; countries in short so little favoured by the sun, that their fruits scarcely ripen, notwithstanding the artificial means they use to expose them to its rays. Hence the mediocrity apparent in the greater part of their works. Hence the natural impossibility that the French should exceed in poetry and eloquence, those boundaries limited to spiritless minds, and fancy void of vigour. Hence, also, the astonishment occasioned in them by the grand sublimity of Spanish productions, the faults in which, where any exist, are so easy of correction.

"The great Corneille was only esteemed great among his countrymen from having badly imitated a work of one of our least excelling poets, the work itself much under mediocrity. (But see how low M. de la Huerta rates *Le Cid*.)

"*Athalie* by Racine is looked upon as his master piece; what is there to be seen in it but a continual evidence of a want of powers? Since, without noticing the extraordinary number of actors, levites and troops introduced, a stale trick to make amends for incapacity of supporting the plot, and the momentum of the piece, without having recourse to fiction; the affected regularity, and even the hellenism which he makes shift to substitute for *want of talent*, prove sufficiently that the piece *ought never to have passed the walls of the college in which it was composed*.

"Can it then be looked upon as extraordinary that this hero of the French poetry, after employing three years in composing his *Phædra*, should end with laming the character of Hypolitus? The whole of this tragedy is replete with considerable faults, and the choice of an action so abominable in itself, even in the eyes of the least scrupulous or delicate, is certainly not the least. Merely from reading of it once I formed a *very mean idea of Phædra*; but after seeing it acted at Paris, where Mademoiselle Dumeril, a celebrated actress, performed the part of Phædra, I was so greatly hurt at seeing all

decency and probability so violently outraged in her declamation, *that I firmly resolved never to be shocked in the same manner again.*" What a punishment for the author and the actresses!

Don Juan Cadahalso, (a Spaniard in other respects very well informed, with whom I made acquaintance on my first journey to Spain,) after speaking at first in high terms of Phœdra, alluding to the famous recital of Theramenes, thus expressed himself; *Sir, in this Phœdra, the style is of that pompous and inflated description which we are so much accustomed to criticise in our poor authors of the last century.* — When in support of his assertion he translated literally this relation, in order to satisfy those among his auditors, who were admirers of the French drama, that when authors attempt to imitate Spanish sublimity, they must either do so by an exact translation, or failing of this, remain in a state of inferiority, both ridiculous and shameful in the eyes of all Spaniards; notwithstanding the unconsciousness of French hearers to their debased appearance. Such is the sublimity of Racine in the opinion of the Spaniards; whom, on the other hand, the French consider vastly to surpass the best of Spanish writers.

La Huerta does not treat Moliere less rigorously, than our two tragic writers. In a note which precedes *el Castigo de la Miseria*, (the Punishment of Avarice,) one of the pretended chef d'œuvres of the Spanish language, which he reprinted, he takes exception at those who reckon this piece to finish at the second act. He says "It is rather extraordinary that those who blame it for this defect, should tolerate and admire *Tartuffe*; of which the first, the second, and the fifth act are entirely superfluous. Moreover, this celebrated comedy finishes in the same manner as our *Intermes*, and if the indecency of it be excepted, bears much resemblance to them." We shall notice, as we proceed, what these *Intermes* are, and whether this comparison does much honour to the sagacity of M. de la Huerta.

It however remains for those foreigners to decide, who are acquainted with the Spanish stage, whether it be blindness, or ill will, that has actuated this unmerciful censor in his judgment. For my part, without retaliating his injurious sentence, I shall only observe that all those who possess any vestige of taste, either in Spain or in other countries, agree, that with the exception of some few modern pieces, the Spanish drama is replete with the most shocking defects. Improbable incidents are crowded on each other, it is filled with extravagance, and its language is a medley of pomposity and vulgarity. It mixes the most miserable parade with affecting and sometimes terrible parts: it has continually a *fool* called *gracioso* on the boards, sometimes humorous, but more frequently insipid, who by his wretched jokes is ever distracting the attention of the audience from the piece. Lovers are diffuse and talkative. The pleasure arising from features of delicacy, which occasionally occur, is destroyed by long dissertations on love. Scarcely one of their plays is free from the blame imputed by M. de la Huerta to the superfluous recital of the fate of Hypolitus by Theramenes; not only are such repetitions common but disgusting at the same time by their digressions, their gigantic comparisons, and their extraordinary abuse of common sense. On the other hand, the plot presents such an intricate labyrinth that there is scarcely any play, to which these verses of Boileau may not be applied:

Et qui debronillant mal une pénible intrigue
D'un divertissement me fait une fatigue.
Whose mazy plot, unravelled with pain,
Instead of pleasing, but fatigues the brain.

This fatigue however does not appear to be felt by a Spanish audience, not even by those whose minds are least improved. Whether the people naturally possess an aptitude

to follow the thread of a plot however complicated, whether it be the result of habit, it is yet certain that they have in this respect a great advantage over other nations, and particularly the French. On this account much art becomes necessary, in fitting a Spanish comedy, (and there certainly are many well worth adopting,) to the French stage. This tribute has been paid it by our forefathers. The service of the Spanish drama to Moliere and Corneille is well known. Corneille extracted the chief beauties of the *Cid* and *Heraclius* from Guillen de Castro, and Calderon; and took much of his *Liar* from the Spanish. Moliere is indebted to the same authority for his *Don Juan* or *Le Festin de Pierre*; but at the same time all their skill was necessary to these men of genius, in modelling the strange originals which they had to work upon for the French stage, for none of these Spanish compositions could have been represented on their boards, without undergoing a change, the best of them being so much filled with relations repugnant to the taste and manners of France. An actor at one of our smaller theatres has recently however made some fortunate essays in this line; although his *Ruse contre Ruse*, (Stratagem for Stratagem) and his *Nuit aux Aventures*, (a Night of Adventures,) may rather be looked upon as pretty close imitations, than translations of two Spanish comedies. Exact translations of Spanish pieces would be next to impossible. Duperron de Castra in 1738 published extracts from several Spanish plays with reflections and translations of the most difficult and remarkable passages. Mr. Linguet gave some of them to the public on entering his literary career. But separate from his making a bad selection he knew not enough of the Spanish language to fulfil his task completely; on which account his translations are no more than abridgements, in which nothing but the skeleton of a dramatic poem is preserved; and the passages not rendered were not those which displeased the translator, but such as he did not understand, so that I do not conceive that there exists one single Spanish piece perfectly and wholly translated into the French language. A principle obstacle to faithful translations exists in the innumerable puns with which the Spanish plays are filled, as well as all their other works of fancy; and as their minutely subtle genius is ever prompt to seize the slightest resemblances, and produce at every instant allusions to localities, customs and anecdotes of the day; these works become excessively difficult of comprehension even to the natives, and are almost impossible to be understood by foreigners; so that a translation of them, unless loaded with comments at every page, would be almost entirely unintelligible.

The Spaniards have always had a great aptitude for poetry. Their talent for extemporaneous productions is less celebrated, but is equally deserving of fame with that of the Italians. I have frequently been witness to ability of this description, which was almost miraculous. I have seen Spanish versifiers little known beyond their sphere, who have supported poetic challenges, which would have dismayed our most fertile and ingenious composers. I have been witness to their engendering strophes of ten lines formed upon the same rhyme, and which by the Spaniards are called *decimas*, in the twinkling of an eye. A stander-by gives for subject of such a piece, the last line which he fixes on at hazard; this is called *echar pii*. Instantaneously the poet produces nine others which are to precede the line given, which forms a natural close: and frequently neither the rapidity of these *improvisos*, nor the fetters with which the author is shackled, prevent their possessing considerable merit. They are at any rate little burlesque pieces, the emphatic utterance of which serves to unwrinkle the brow of the most serious; in which it is true good sense is sometimes outraged, but in which the laws of poetry are rigorously observed.

The

The forms of poetry are singularly various among the Spaniards. Their language, very flexible and fitted for inversions, comprizes all descriptions of metre common to European tongues; but they have one in addition peculiar to themselves. Their rhimed verse is easily distinguishable both by the eye and the ear, and is called *consonante*. But the couplets called *assonantes* would scarcely be taken for verse by those who should not be informed thereof; and it is in this kind of poetry that their theatrical compositions both ancient and modern are written almost from beginning to end.

They begin generally with a succession of real rhimes, either continued, or alternate, of an equal number of feet in the one instance, or in the other of an unequal number. After the first or second scene the *assonantes* succeed, sometimes after but a short run of *consonantes*, and continue with the intervention occasionally of a few *consonantes* to the end of the piece. These *assonantes* are a continuance of phrases with a cadence, subject to a certain measure. Each of them forms a verse, but the *assonante* happens only in every other line, and does not require an actual rhyme. It is sufficient that the two last vowels of each second line, should be the same. An example will render this more comprehensible, for which purpose I have selected at hazard the following from a Spanish piece:

Ya, Leonor estamos solas
 Salgan por la boca afuera
 Tantos evidados del alma
 Como me afligen y cercan;
 Y antes que de mis pesares
 Intente, amiga, dar cuenta
 Es bien que ponderi aora
 Con admiracion discreta
 Que siendo las dos amigas
 Tanto, que enlaza y estrecha, &c. &c.

At first sight there appears no rhyme in these ten lines, there is none in fact in the first, third, seventh, and ninth; neither is it requisite there should be. But the second, fourth, sixth, eighth, and tenth, are *assonantes*, because each of them has for its two final vowels, an *e*, and an *a*.

A foreigner might frequent the Spanish theatre for ten years without suspecting the existence of *assonantes*, and when pointed out to him, he will yet find it difficult to follow the trace of them; but what he so hardly perceives, does not escape a Spaniard, even for an instant, however illiterate he may be. The second verse of a long course of *assonantes* is scarcely pronounced before he distinguishes the succession of final vowels, which begins its empire; he is intent on their periodical return, and an actor would not with impunity attempt to supplant them by others; singular faculty which pertains to the delicate organization of the people of the south, and the aptitude for declamation of the most vulgar and obscure individuals. These play a principal part at the theatre; their number and assiduous attendance form together one of the circumstances which render its reform so difficult.

The theatre itself had as mean an original among the Spaniards as in France, and preserves in many places its primitive form. Two parallel curtains, facing the audience, composed all the mechanic parts of the play-house, and there are places where this has not been improved upon. Behind the second curtain is the prompter, with a candle in one hand, and his piece in the other, running from one side to the other to assist with his function those actors who are in need of his help; but the theatres of Madrid of the

the present day, and in other great towns, the flips, changes of scenery and decorations, and the position of the prompter are much the same as at Paris. At first indeed one is somewhat vexed at hearing the prompter recite the parts, in almost as audible a tone of voice as the actors. To this defect, however, one soon becomes reconciled, and after long custom it is scarcely noticed.

The play-house is divided into five parts *La Luneta* which answers to the *Parquet* of the French, and occupies part of the advanced part where the orchestra is placed with us. *Los Apofentos*, which are two rows of boxes, in the upper part of the theatre, *La Cazuela*, a kind of ampitheatre on the ground floor. In this part the women of common rank only are admitted, covered with their veils, for the most part white; but therein creep as well those charming intruders, who under the auspices of love are anxious to cheat the vigilance of some jealous hawks, or some idlers of the *ton*, who are either too lazy to decorate themselves, or desirous of saving the expence of having their hair dressed after the French fashion. *Las gradas*, another ampitheatre above the boxes, on both sides the house, where such of the common people as are desirous of sitting at their ease resort; and *El patio*, or the pit which contains none but the vulgar, with all their brutal manners, their ignorance, and their rags. This part of the audience, which has no seats, is always noisy, and as difficult to be pleased, as if it had fair pretensions.

The actors oftentimes address these five classes of spectators under the title of *mosqueteros*, and are lavish towards them of such stale epithets as they deem calculated to secure their favour.

At Madrid, the actors are shared by two theatres, that of *La Cruz*, and that of *El Principe*, which for interest-sake make common cause. There is, however, a rivalry as to ability kept up between them. Each has one of the players for a director, who every year dissolves and re-composes his troop. It is then that the actors, who are the greatest favorites with the public, expose themselves for sale, and close with the most expert or most generous. It will be readily imagined, that the *graciosos* are not forgot on these occasions. The two directors make arrangements between themselves for dividing them, for fear that too evident an inequality should exist between the two troops, and each in consequence should equally suffer. As for the others, all the talents of a different description are rather calculated for parade than the boards of *Thalia*. Spain has no idea of actors, in whom liveliness is united with grace, and sensibility with elegance of delivery; in one word, of such, as make the art of declamation the relative and rival of the fine arts. Their actors are but imitators, and while they servilely copy the models before their eyes, they have no conception of creating new ones in an imaginary but possible world, where every thing is noble without ceasing to be true. Driving along the same track, unskilful in delivery, as well as in their gesticulation, they exceed all bounds, exaggerate and disfigure every thing, and instead of managing their powers to enable them to effect the perfect delineation of their character, they become exhausted, and overstep all limits. Their women where impassioned are furies, their heroes are coxcombs, their conspirators rascally malefactors, and their tyrants butchers.

They are far from possessing actors resembling *Clairon*, *Kain*, *Garrick*, or *Siddons*. Indeed, in Spain, actors are no other than mercenaries, who are looked upon in society but as so many mountebanks, who, while they amuse us, are paid and tolerated, and afterwards are sent about their business; whereas in other countries, where prejudice causes them, generally speaking, to be still more meanly esteemed, the just admiration which some inspire, raises them to the level of superior artists, and men of genius.

In their ancient comedies, if deficient in some respects, they yet afforded pleasing examples of every virtue which can be taught a people; such as loyalty, magnanimity, justice, and particularly benevolence; and although in the exaggeration of their representations they may possess something offensive to taste, they cannot be seen without implanting in the mind a disposition to the exercise of these virtues. In the modern productions of Spain on the contrary, not only do they sacrifice common decency; they present the audience with pictures of the most shocking irregularities, without any attempt to excite the due horror for such offences. Conspiracies of sons against fathers, cruelty of husbands, infidelities on the part of wives, and even the unpunished villainies of malefactors; every thing is given by the actors, is suffered by the police, and applauded by the public. The consequences of this sufferance are, however, important, particularly in Spain, where the theatre is frequented by all classes of people. The populace even seem to be the principal object of their respects and adulation. They are sovereign at the Spanish theatre. Their whims must be attended to, their perverse taste be flattered, and the tumultuous manner in which they express their vulgar sensations, stifles the less noisy voice of the more enlightened part of the audience; a singular, possibly an unique, circumstance in a country where the people seem to be counted for nothing. May we not hence infer that there exists even amidst the most obscure classes of this people a sort of spirit, a sentiment of independence which is depressed by the continual sway of arbitrary power, but which although it may keep under, it is yet unable totally to annihilate?

One would think that a theatre so loose in its representations, would keep from it those persons with whom age or their condition of life should make decency a duty; but the foreigner sees, and sees with amazement, not only young ladies of a modest exterior, among the spectators of scenes which put delicacy to the blush, but even ecclesiastics, whose grave demeanour, and austere dress, form a singular contrast with the lessons of corruption, and the sallies of libertinism exposed before them. A pagan worthy formerly left the theatre at Rome left by his presence he should give a sanction to the offensive matter which was represented before him. Spanish priests intolerant with respect to less significant objects are not equally scrupulous with regard to the interests of virtue. Apostles of religion, are they not then doctors of morality? Or are they ignorant that without morality religion is but error, and a scourge? Let them use their influence in reforming the theatre, and no one will take exception at their appearing at it.

As to its reform, a combination of circumstances must take place in Spain before this can be expected. The sovereign in the first place should take an interest in it. Louis XIV. knew and patronized Moliere; he himself presided at the brilliant entertainments which he gave, and in which a conspicuous station was assigned to the drama. Wherefore had the Spanish theatre some celebrity in the reigns of Philip III. and Philip IV., which in so many respects are considered as epochs of the decline of Spain? The reason was because those princes encouraged dramatic writers by their approbation, and rewards; it was because they themselves took pleasure in theatrical exhibitions.

The kings of the new dynasty, who in other matters have been so worthy of praise in departing from these sad models, have not, as they did, carried their generative attention to the Spanish stage. Philip V. was of a pious disposition, and loved a retired life. Ferdinand VI. was more attached to Italian arts than those of Spain. Charles III., who seemed to hold out encouragement to other arts, who built La Cañerta, withdrew Herculaneum from its tomb, adopted the pencil of Mengs, and embellished with several monuments of his taste, the capital of Spain: Charles III. if he had not an aversion to the

the stage, yet looked upon it with the most complete indifference; and Charles IV. has not yet been able to effect a regeneration, which is looked for with impatience by all who are attached to the drama. Their minister, Florida Blanca, appeared to patronize the theatre of the capital, but he rather participated in the taste of the nation than felt disposed to combat it.

The part of the police, which has relation to the theatres, is divided between the Corregidor, the members of the town-hall, and the Alcaldes de Corte. But the limits of their jurisdictions are so indistinctly marked, that from an uncertainty as to proper authorities, result the irregularities, which each of these inspectors see, but which separately neither has the faculty of preventing. Each of the three or four censors, before whom every fresh offence must be carried, is desirous of removing from himself the odium of punishing, and consequently relies for greater rigour on his colleagues; so that their collective voice for the suppression of impure productions, equally offensive to decency and good taste, is difficult to be obtained. Add to which, these different examiners are frequently, themselves, infected with the general contagion. Besides they must possess more resolution than what falls to their share commonly, to snatch from the people the objects of their admiration, and not to yield to the representations of the comedians, whose receipt would suffer from such sudden reforms.

Mr. Olavidi, whose active capacity was capable of embracing at once every part of administration, together with the police, had began to effect some salutary reforms in the decorations, dress and the art of declaiming; and this formed a charge on the part of his enemies against him at the time of his disgrace.

Some samples were given in the reign of Charles III. of a resolution at reform, which cannot be too much exercised for polishing the Spanish nation. The *autos sacramentales* were definitively proscribed; in these pieces, angels, saints, and the virtues personified, played each their different part, to the great scandal of religion and reason; whimsical compositions, in which Calderon particularly displayed all the capricious fecundity of his genius. Other pieces have also been interdicted, such as *Los celos de San Josef*, and particularly the *Devil turned parson*, dramas of a description at once pious and farcical, in which innocence formerly perhaps found subject for edification.

A revolution is begun, even in the mechanical part of the theatre. At Madrid, at least, decorations are better understood, the costume more appropriate; and one no longer sees, (if ever such was the case as is represented by the witty impostor who has treated the world with *Le voyage de Figaro*,) one no longer sees *Orosmanes in a dressing gown*, and *Zara in a fart in gale*. There are incongruities enough upon the Spanish boards, to render unnecessary the inventions of a witty mind, to encrease the ridicule it merits. In Spain, as well as in Italy, actors of both sexes, cast their eyes over the boxes, and smile graciously on such persons as they may chance to know; and after a long speech, when they receive applause, they never fail turning towards the spectators, testifying their gratitude by a profound obeisance. These are defects which relate to the comedians. I shall give a specimen of others which pertain to the theatre itself.

Sometimes one or more of the actors entirely quits the stage, and takes his place in the boxes, whence a dialogue is kept up between him and the other performers. Nay, I know a piece, in which this extravagance is carried to a still higher pitch. It is one of those heroic comedies in which the Moors and Spaniards at war with each other are prodigal of eloquent outrage. One of the Moorish generals, unable to force his way towards his foes, to whom he has to make some threatening declaration, gallops into the pit, and thence harangues the Spaniards.

What shall I say of the strange custom of interweaving in their most serious comedies little pieces which have no relation to them whatever? I speak of those modern comedies which the Spaniards call *Saynetes* or *Intermes*, which are little pieces in one act, as simple in their plots as those of the great pieces are complicated. The manners and character of the inferior classes of society, and the petty interests which associate or divide them, are therein represented in the most striking manner. It is not an imitation but the thing itself. The spectator seems to be suddenly transported into a circle of Spaniards, where he is present at their amusements and little cavillings. The manner of dress is so faithfully copied that he is sometimes disgusted. He sees porters, flower-girls, and fish-women, who have all the gestures, manner, and language of those he has seen a hundred times in the street. The Spaniards do not seem to be aware that nature in her most simple garb may be embellished without ceasing to bear resemblance, and that it is in this that the merit of the art of imitation consists. The same observation may be made of the productions of their school of painting. Look at the shepherds, the young peasants of Velasquez, nay even of Murillo, they are with respect to elegant painting, what the *Saynetes* are to the dramatic art, striking but disgusting by their too exact resemblance. For these kind of characters the Spanish comedians have an admirable talent. Were they equally natural in every other they would be the first actors in Europe.

The *Saynetes* seem to have been invented to give relief to the attention of the audience fatigued by following the plot of the great piece through its inextricable labyrinth. Their most certain effect is that of making you lose the clew; for it seldom happens that the real Spanish comedies are represented without interruption. There are scarcely any exceptions unless in new pieces, either original or translated, in which the writers have felt the necessity of greater regularity. All the old ones are composed of three acts, called *Jornadas*. After the first act comes the *Saynete*, and the warrior or king, whom you have seen adorned with a helmet or a crown, has frequently a part in the little piece; and to spare himself the trouble of entirely changing his dress, sometimes preserves a part of his noble or royal garments. His fash or buskin still appears beneath the dirty cloak of a man of the lowest class, or the robe of an Alcalde.

When the *Saynete* is finished, the principal piece is continued. After the second act, there is a new interruption longer than the first; another *Saynete* begins, and is succeeded by a species of comic-opera, very short, and called *Tonadilla*. A single actress frequently performs the whole, she relates, in singing, either an uninteresting adventure, or some trivial and frequently scandalous maxims of gallantry; she then courts the applause of the audience as she retires, and the third act of the great piece is permitted to begin.

What becomes of the illusion and interest in the piece after these interruptions? This may be readily conceived, and it is not uncommon to see great part of the audience depart after the *Tonadilla* is finished.

The *Saynetes* and *Tonadillas* are frequently the most attractive parts of these strange medleys, and after a short residence in Spain, it is easy to conceive the attraction which the *Saynetes* and *Tonadillas* must have for the people of the country. The manners, dress, adventures, and music, all are national; besides, there are frequently presented in these little pieces two species of beings peculiar to Spain, and whose manners and expressions are the objects of much mirth and pleasantry, and sometimes of imitation. These are the *Majos* and the *Majas* on the one part, and the *Gitanos* and *Gitanas* on the other.

The *Majos* are beaux of the lower class, or rather bullies, whose grave and frigid pomposity is announced by their whole exterior. Their countenance, half concealed under a brown stuff bonnet, called *Montera*, is threatening, or full of insolence, which seems to brave those persons whose station should awe them into respect, and which is not softened even in the presence of their mistresses. The officers of justice scarcely dare attack them. If provoked by any freedom, a symptom of displeasure or a menacing look, a long rapier or a poniard, concealed under their wide cloak, announce that none must make free with them with impunity.

The *Majas*, on their parts, rival these caprices as much as their feeble means will permit; licentiousness and effrontery appear in their attitudes, actions, and expressions; but if not very scrupulous about the manner in which voluptuousness is displayed, in them may be seen the most seducing priestesses that ever sacrificed on the altars of Venus. Their charming tricks subject the senses to a delirium that the wisest can scarcely guard against, and which, if it inspire not love, at least gives promise of delight.

Persons of the most indulgent nature are however displeased that the *Majos* and *Majas* should thus be brought upon the stage, and preserve their attraction even in circles of good company. There are, among both sexes, persons of distinguished rank, who seek their models among these heroes of the populace, who imitate their dress, manners, and accent, and are flattered when it is said of them, *He is very like a Majo.*—*One would take her for a Maja.*

The *Gitanos* and *Gitanas* are a kind of gipsies who run about the country, lead a dissolute life, tell fortunes, exercise all kinds of suspicious professions, have among themselves a language, particular signs, in short are dexterous knaves, who prey upon the unwary. This class of vagabonds, of which society ought to be purged, has hitherto been tolerated; and characters of them are given upon the stage, amusing by their originality; but the effect of this is, it renders vice familiar by concealing its deformity under a gay exterior. They are, if I may so say, the shepherds of the Spanish stage, certainly less insipid, but at the same time less innocent than those of ours. Their tricks, plots, and amorous intrigues, suited to their manners, are the subjects of several saynetes and tonadillas, and probably serve for lessons to many a spectator.

Such is the modern Spanish stage. There are playhouses at present in most of the principal towns of Spain. It may easily be conceived that their defects are even still greater than those of the capital. What then can we think of their strolling-players, called *Comicos de la legua*, who travel from town to town with the rags which serve them for decorations, and perform in barns and stables? The heroes of Scarron are at least entertaining, these excite nothing but disgust.

After death of Ferdinand VI., who had an Italian theatre at his court, there was for a long time no other than the national theatre. The Marquis de Grimaldi re-established the Italian house at the court of Charles III., but it disappeared upon his retirement. Towards the latter part of his reign, this prince permitted the formation of one in his capital, which still subsists. The principal hospital at Madrid in the first instance was to pay the expence of maintaining it, and receive the profits, but turning out disadvantageous, the management of it was given to the proprietors, principally *grandees*, who however have not been able to support it without expence. Serious opera and farce is represented at this theatre; the decorations are handsome, the dresses splendidly rich, and the *corps de ballet* of a superior description. The Spanish actors having these models before them, appear to be pleased with them, nevertheless their representations continue nearly the same. They may therefore be deemed incurable.

As for French theatres, they are at present, and for a long time back have been, entirely banished from Spain. Towards the middle of the reign of Charles III. one was established at Cadiz. The persons concerned were ruined, and the plan given up. Since that time it was in contemplation to introduce one at Madrid. The ambassador Vauguyon seemed greatly interested in the scheme. The devotees resisted it, pretending that French plays were full of maxims of tolerance, and breathed too much of modern philosophy. They reckoned no less than sixteen heretical assertions in the single piece of *Pygmalion*. In addition, the hospital, whose support in a great degree depended upon the revenue which it received from the two national theatres, it was apprehended might suffer from its establishment. The King listened to the conjoint remonstrance of religion and charity against the measure, and the plan was laid aside. Notwithstanding this, the nation has become accustomed to the translations of some of our plays, although the time must needs be looked upon as distant at which we may see a French theatre at Madrid.

CHAP. XIV.—Of the Bull fights.

AT the head of the amusements of the Spanish nation must be placed one which belongs almost exclusively to itself, one too to which it is singularly attached, notwithstanding its being obnoxious to the delicacy of the rest of Europe; I mean the bull-fights.

Many Spaniards look upon them as one means of preserving, in their nation, that energetic spirit by which they are characterized; yet it is difficult to comprehend what relation there can be to strength and courage, in a spectacle where those present are exposed to no danger, and in which the actors prove by the rarity of accidents, that the hazard they themselves run is not of a nature to excite much concern. I know very well that exaggeration frequently represents accidents as very common. It is true, those cavaliers who are thrown from their horses sometimes receive very violent contusions; but in the course of nine years that I was a spectator of these fights, I never knew of more than one *Torreador* who died of his wounds. However, a priest is always at hand, in a latticed box, furnished with holy oil in case of necessity. Yet were accidents as frequent as they are uncommon, they might familiarize the spectators with the effusion of blood, and the sufferings of their fellow-creatures, but could not habituate them to the fronting of danger, or endurance of pain. They might render them unfeeling and cruel, but never resolute and brave. Another proof that this spectacle has no influence upon the minds of those who frequent it is, that I have seen among the spectators children, young women, old people of both sexes, men of every age, class, and character, in whom however these bloody entertainments did not tend to correct weakness or timidity, nor changed the mildness of their manners. Nay more, I have known foreigners of great benignity of nature, who at first suffered so much at the sight of these bull fights as to change colour, yet who afterwards became much enamoured with the exhibition. These diversions are very expensive, but very profitable to the undertakers. The price of the lowest places is two, or four rials, according as they are exposed to the sun, or in the shade. The highest price is a hard dollar. After the value of the horses and bulls, and the salary of the *Torreadores*, have been deducted from the money received, the remainder is commonly dedicated to pious uses: at Madrid it forms a principal fund for the support of the general hospital.

Bull-fights are mostly given in summer, on account of the spectators who remain in the open air, and the animals being then more vigorous. Peculiar breeds are set apart

for this species of sacrifice. A list is delivered to the spectators in which the number and the country of the victims are described, whose torture is intended for their amusement. There are twenty benches round the circle, and that only which is most elevated is covered. The boxes are in the upper part of the edifice. In some cities, such as Valladolid, where there is no particular place set apart for the combat, the principal square is converted into a theatre for the purpose. The sight of the people of every class assembled round the square, expecting the signal for battle, and exhibiting in their countenances every sign of joy and impatience, has in it something interesting.

The exhibition begins by a kind of procession round the square, in which the champions, as well on foot as on horseback, who are to attack the fierce animal, make their appearance, dressed in all the elegance of Spanish costume; the *Picadores* in a round hat, half covered with a short cloak, the sleeves of which float in the air, are on horseback, in white skin gaiters: those who are on foot are dressed in the lightest and nicest manner, and in pumps; both wear silk jackets of a bright colour, and trimmed with ribbands, with a scarf of a different colour, and their hair bound up in a large silk net, the fringes hanging from which descend as low as the reins. After the procession is finished two alguazils on horseback gravely advance, in wigs and black robes, to the president of the fight (the governor or the corregidor) for an order to begin. The signal is immediately given. The animal, until then shut up in a kind of pen, the door of which opens into the circle, makes his appearance. The agents of Themis, who have no quarrel with him, prudently hasten their retreat, and their fright, generally ill seconded by the speed of their horses, is the prelude to the cruel amusement which the spectators are about to enjoy.

In the mean time the bull is stunned with their cries and noisy expressions of welcome. He has first to combat with the horsemen (*Picadores*), who wait for him armed with long lances. This exercise, which requires address, strength, and courage, has nothing in it degrading. Formerly the greatest among the nobility did not disdain to take a part in it; at present even some hidalgos solicit the honour of combating on horseback.

The *Picadores* open the scene. The bull, without being provoked, frequently attacks them, upon which circumstance, when it happens, the spectators conceive a great opinion of his courage. If, notwithstanding the pointed steel which repels his attack, he again returns to the charge, cries are redoubled, and pleasure then becomes enthusiasm; but if the animal be pacific, disconcerted, and cowardly runs round the circle, avoiding his persecutors, murmur and hissing resound throughout the theatre. If nothing can rouse his courage, he is judged unworthy of being tormented by men, and the repeated cries of *perros, perros*, bring on him new enemies. Great dogs are then let loose upon him, who seize him by the neck and ears. The animal then assumes the use of his natural weapons. The dogs thrown into the air, fall stunned, sometimes gored, upon the ground; they rise again, renew the combat, and commonly end by overthrowing their adversary, who then perishes ignobly.

On the contrary, if he conduct himself properly, his career is more glorious, but of greater duration and more painful. The first act of the tragedy belongs to the combatants on horseback; this is the most animated but the most bloody and disgusting part of the whole.

The irritated animal braves the steel which makes deep wounds in his neck, falls furiously upon the innocent horse who carries his enemy, gores his sides, and overturns him with his rider, who in this case, upon the ground and disarmed, is in imminent danger, until the combatants on foot, called *Chulos*, come to his assistance, and provoke the animal by shaking before him stuffs of different colours.

But

But it is not without danger to themselves that they save the dismounted horseman. The bull oftentimes pursues them, and they then have need of their utmost agility. They escape by letting fall the piece of stuff which is their only weapon, and upon which the fury of the deceived animal is exhausted. But it sometimes happens that he is not thus to be imposed upon, and the champion has no other resource than leaping over the barrier six feet high, which forms the interior of the circle. In some places there are two barriers, and the intermediate space forms a kind of circular gallery, behind which the *torreador* is in safety. The bull frequently leaps over the first inclosure, but uneasy and ignorant what to do, he continues his course along the corridor, until an opening brings him anew into the arena; but when the barrier is single, the bull makes efforts to leap it, which he sometimes accomplishes. The alarm of the nearest spectators may easily be imagined; their precipitation in retiring, and crowding upon the upper benches, becomes more fatal to them than the fury of the animal, which stumbling at each step upon the narrow and uneven space, rather thinks of saving himself than satisfying his vengeance; and soon falls under the blows that are hastily and repeatedly given him.

Except in these cases, which are rare, he returns to the charge. His dismounted adversary having had time to recover himself, immediately mounts his horse again, provided the latter be not too much wounded, and the attack is renewed; but the cavalier is frequently obliged to change his horse. I have seen seven and eight horses gored, or their bowels torn out, by the same bull, fall dead upon the field of battle. No words can then sufficiently celebrate these acts of prowess, which for several days become the favourite subjects of conversation. The horses, astonishing examples of patience, courage, and docility, at times, before they die, present a sight at which humanity shudders: they tread under feet the bloody entrails which fall from their lacerated sides, and still continue to obey the hand which guides them. Disgust then seizes such of the spectators as possess any sensibility and embitters their pleasure.

But a new act in the piece succeeds. When the bull is deemed sufficiently tormented by the combatants on horseback, these withdraw, and leave him to the champions on foot, called *banderilleros*; who meet the animal, and the moment he attacks them, stick into his neck, two by two, a kind of arrow, called a *banderilla*, terminated like a fish-hook, and ornamented with little streamers of stained paper. The fury of the bull redoubles; he roars, and his vain efforts serve but to increase the anguish occasioned by the dart lodged in him. This last torment gives a fine opportunity for a display of the agility of his new adversaries. The spectators at first tremble for their safety when they see them so near the horns of the animal; but their skilful hands inflict so sure a blow, and they escape so nimbly from the danger, that after a few times their address appears nothing more than a trifling episode in the tragedy of which the catastrophe is as follows:

When the vigour of the bull appears almost exhausted, and his blood, flowing from twenty wounds, pours from his neck, and moistens his robust sides, the fury of the people, then satiated, calls for another victim; the president then gives the signal for his death, which is announced by the sound of drums and trumpets. The *Matador* advances and remains alone in the circle; in one hand he holds a long knife, in the other a kind of flag, which he waves before his adversary. At first each stops and observes the other. The impetuosity of the bull is several times avoided by the agility of the *Matador*, and the pleasure of the spectators is rendered more lively by their suspense. Sometimes the animal remains immovable; he scrapes the ground with his feet and seems to meditate vengeance.

The bull in this situation, and the Matador who penetrates his design, and carefully observes his slightest motion, form a picture which an able pencil might not deem unworthy of delineation. The assembly notice this dumb scene in silence. At length the Matador gives the fatal blow; and if the animal immediately falls, the triumph of the conqueror is celebrated by a thousand exclamations; but if the blow be not decisive, if the bull survive, the murmurs are not less numerous. The *Matador*, whose address was about to be extolled to the skies, is looked upon only as a clumsy butcher. He instantly endeavours to recover from his disgrace. His zeal then becomes blind fury, and his partisans tremble for his life. At last he gives a better directed blow. The animal vomits streams of blood, struggles with death, staggers, falls. His conqueror then is lifted to the skies by the applauses of the people. Three mules covered with bells and banners terminate the piece, dragging the bull by those horns which betrayed his valour from out of the circle, leaving behind the traces of his blood, and a slight remembrance of his exploits, soon effaced by the appearance of his successor.

On each of the days dedicated to these feasts, (at least at Madrid,) six bulls are sacrificed in the morning, and twelve in the afternoon. The three last of the animals are exclusively left to the *Matador*, who, deprived of any assistance from the *Picadores*, employs all his dexterity in varying the pleasures of the spectators. He sometimes allows an intrepid stranger, mounted upon another bull, to combat them; at others he turns a bear against them. The last bull is particularly devoted to the entertainment of the populace. The points of his horns are covered with a round case, which diminishes the effect of their strokes. In this state the bull, which is then called *Embolado*, loses the power of piercing and lacerating his adversary. The spectators descend in crowds to torment him, each after his own way, and often pay for their cruel pleasure by violent contusions; but the creature always falls at last under the blows of the *Matador*.

The few spectators who do not partake the rage of the populace, regret that these wretched animals have not their lives, at least saved, in recompence for their many tortures, and display of courage. They would willingly aid them to escape from their persecutors. In these the humane few, disgust succeeds to compassion, and weariness to disgust: the uniform succession of similar scenes throws a languor upon the amusement which the spectacle promised at the beginning. It recalls the opinion given by Pliny of the games of the circus: *nihil novum, nihil varium, nihil quod non semel spectasse sufficiat* *.

But to the connoisseurs who have studied the artifices of the bull, the resources of his address and fury, the different methods of tantalizing, deceiving, and tormenting him, (for in some provinces this is a study from youth to manhood,) to these no one scene resembles another, and they pity undistinguishing observers who cannot perceive their variety.

A master worthy of composing a didactic poem on this matter, in appearance so barren, and notwithstanding so famed, the famous *Torreador* Papehillo †, in 1796 published a treatise intitled *La Tauromaquia o arte de torrear a pii y a caballo*, a work useful for torreadors, whether professional or amateurs, unique in its kind, and much sought after by the public. Of this, it may be fairly said that the author was a master of his subject.

* It contains nothing novel, no variation, nothing in short which it is not sufficient for satisfaction to have seen a single time.

† He died in 1808, and it may be truly said in the bed of honor. He fell the victim of a bull he was about to kill; the second person who perished thus in the space of thirty years.

In this pursuit, as in others, the spirit of party confers reputation; and disputes or exaggerates success. When I arrived at Madrid, the connoisseurs were divided between two famous *Matadores*, *Castillares*, and *Romero*, as people might be in other countries, with respect to the merits of two celebrated actors. Each sect was as enthusiastic in its eulogiums and positive in decision as the *Gluckists* and *Piccinists* perhaps were in France. It is difficult to believe that the art of killing a bull, which seems to be the exclusive privilege of a butcher, should be gravely discussed, and extolled with transport, not only by the people, but by the best informed men, and women of the greatest sensibility. Let us not, however, draw from this any conclusion unfavourable to the Spaniards. In spite of their singular attachment to bull-fights, in spite of the barbarous delight they take in seeing the blood of these innocent and courageous animals thus spilt for sport, they are nevertheless susceptible of good nature and humanity. On leaving these bloody pastimes, they are not the less sensible to the comfort of a pleasant home, to friendship, nor to love. Their courage does not on this account become more ferocious. When duels and assassination were more common, they were not more attached to this favourite amusement than at present. Their manners are softened from what they were anciently, without their passion for bull fights being diminished. The day on which they are celebrated is a day of rejoicing for the whole district, for ten or twelve leagues round the place. The artist who can scarcely provide for his subsistence, has always a surplus to expend on this spectacle. And woe to the chastity of the poor girl, whose poverty should exclude her from it; the man who should pay for her admission, would certainly place it in danger.

The Spanish government under Charles III. seemed to be aware of the inconvenience of this kind of phrenzy; the origin of disorders and dissipation, and highly prejudicial to agriculture by sacrificing, in such numbers, robust animals which might be employed in cultivation. This King had himself an aversion to bull fights, and was desirous of weaning the nation, by degrees, from its attachment to them. His first minister, Florida Blanca, entered into his views. Under his administration the number of these entertainments, in the principal provincial towns, was diminished. Even at Madrid none but weak animals were allowed for the sport, and the people began to lose their relish for them: but it was foreseen that under Charles IV., they would resume their original attraction.

There is in Spain another diversion called *La Fiesta de Novillos*. In this young bulls not designed to meet with death, but to grow up for the fatal lists, make trial of their budding horns, and are tantalized by a number of amateurs, who, like themselves, are learners. The Prince and Princess of Asturias, not daring to oppose the taste of the old King Charles III., yet allowed themselves to enjoy by stealth these parodies of the grand exhibition. From this it was argued that he would give these games his countenance. The beginning of the reign confirmed this conjecture. For a long time none of those entertainments known by the name of *Fiestas-reales* has been given by the court. The plaza-mayor, on such occasions, was the theatre of these exhibitions. The King and his family honoured the spectacle with their presence. His military household presided to keep order. His halbardiers formed the inner circle of the theatre, and their long weapons were the only barrier opposed to the dangerous caprices of the bull. There were no more than one of these *Fiestas-reales* in the former reign. They were considered as abolished. But the coronation of the new King, brought them again into fashion. Since that period the bull-fights have resumed their former charm for the people. Licence is granted with less difficulty to such towns as solicit leave to establish them for the benefit of different objects of charity. Those of the capital

capital have again become worthy of awakening that enthusiasm which began to flag. As early as 1789 the bull-fights were more animated and bloody than had been known for a long time; more than once had one of these animals kept the field after ripping up all the horses and wounding the greater part of the combatants.

There yet remains therefore two institutions in Spain, to which the nation appears to be attached by fettering bonds; two institutions which have more than one point of contact.

Both inspire a sort of horror at those who defend them.

Both are barbarous, the one as it relates to manners, the other in its respect to opinion.

Neither should meet with any other apologists than such as Jack Ketch, yet virtues belonging to christianity are both the motive and excuse of each. By the one Faith arms itself with rigour against incredulity; in the charitably applied produce of the other the wretched find relief.

One throws impediments in the way of increasing agriculture; the other is the chief obstacle to the progress of philosophy.

Do they require I should name them? The one is the Inquisition, the other the Bull-fights.

With these observations, I shall conclude what I had to observe of the manners and taste of the Spanish nation. From this impartial view of the customs, pleasures, and resources of its capital it must be allowed, that where a foreigner has made himself master of the Spanish language, a matter easy enough in itself; where he is willing to introduce himself into the company of the natives of fashion, who are very accessible; where the manners of the country, which are singular but not offensive, have once become familiar, and provided he have no other favor to ask at Madrid, than the smiles of some amiable fair one, he may pass his time as agreeably in this capital as in any other of Europe.

VOLUME THE THIRD.

CHAP. I.—*Prospect of Toledo.—The Alcazar.—Mozarabic Missal.—Of the Archbishop and his clergy.—An example of toleration.—Ecclesiastical jurisprudence with respect to marriage.—Cathedral and public edifices of Toledo.—Its environs.—Casa del campo.—Villaviciosa.—San Fernando.—Loeches.—Toros de Guisando.—Battuecas.—Avela.—Alcala.*

Before I conduct the reader towards the south of Spain, I shall first lead him through different places worthy of attention at a short distance from the capital, whither I was attracted by curiosity.

I shall begin with Toledo, a famous city, formerly the residence of the Moorish Kings, and at present the see of the primate of Spain. It is situated upon the right bank of the Tagus, twelve leagues from Madrid, and seven from Aranguez. On the road from Madrid, you pass through two large towns, the lands about which are famous for their extreme fertility, and high state of culture, called *Getafe*, and *Illescas*. But as is the case almost throughout Castile, they are destitute of trees.

In going to Toledo from Aranguez, you pass through a far more picturesque country. Beyond that residence the valley in which it is situated spreads, and the Tagus whose course is at times seen at a distance, and at others nigh, affords some pleasing views. But during this course its banks are steep, and covered with stones; and the river itself which flows tranquilly by Aranguez, on its approaching Toledo and under its ancient walls, flows with the noise and rapidity of a torrent.

Before you enter Toledo, the Tagus is crossed over a bridge of frightful height.

The idea which one is liable to form of this city from the pompous title of *imperial*, which it has enjoyed ever since it was taken from the Moors by Alphonso VI., from its disputing with Burgos for pre-eminence in the assembly of the *Cortes* of the kingdom of Castile, whose capital it formerly was, and whose ancient splendor is attested by its monuments, but ill agrees with its narrow, crooked, and deserted streets, its almost absolute want of comfort, and destitution of industry. Madrid, which latterly has increased its population at the expence of its neighbours, has laid Toledo greatly under contribution. The appearance of its mouldering edifices gives it an air of wretchedness, with which, however, the interior of its houses does not correspond. One meets here with neatness in extreme, a property but rarely united to poverty. The inhabitants, above all things, are highly sollicitous of excluding the rays of the sun, and contrive to have coolness around them in the most violent heat of the Dog days. At this period, if you pay them a visit, you might deem yourself in the palace of sleep. By three o'clock, for them, the sun has set; the casements and blinds are hermetically closed, the floors repeatedly sprinkled; with these, large sheets are spread over their courts, and every thing concurs to form an illusion, as to the warmth of the climate, and hour of the day.

It is true, these precautions are common to almost all the towns of Spain in the height of summer; but no where have they appeared to me so striking as at Toledo. Until lately inventions for these indulgencies were almost the only labour to which its inhabitants were addicted. Within these few years they are roused from the *siesta*, to which they seemed perpetually condemned. Indolence and misery were successfully combatted by Cardinal Loenzana, who, for more than twenty years, was their archbishop. The Alcazar, ancient palace of the Gothic Kings, was almost intirely rebuilt under Charles V.; but ever since the conflagration, by which it suffered in the beginning of the eighteenth century, it had continued in a ruinous condition. The archbishop put it in repair. He established here silk looms, which afford employment to seven hundred poor people; an hospital for indigent women and old men; and formed a school for two hundred children, who are brought up at his expence, and taught to draw.

Such is the employment to which this prelate dedicated his superfluity; and as the simplicity of his life was truly apostolic, his wants were very circumscribed, and his superfluity immense. Notwithstanding the precision with which he attended to his spiritual functions, he yet had leisure to devote to literature. Before he occupied the see of Toledo, he had filled that of Mexico, and discovered there a new collection of the letters of Fernand Cortes. This he published with notes on his return to Europe. He has also given to the world several learned works, particularly a new edition of the Mozarabic Missal. This is a collection of the offices of the church, as celebrated according to the Mozarabic ritual, adopted by the Christians in the countries occupied by the Moors. Fallen into disuse, it was revived by Cardinal Ximenes, who founded a chapel at Toledo, in which divine service is still performed conformably to this ritual, as well as in one of the churches of Salamanca.

Madrid and Aranguez forming part of the diocese of Toledo, the Cardinal, Archbishop of this town, frequently appeared at court, even previous to his being nominated chief inquisitor. Madrid notwithstanding is the residence of one of those grand vicars, who officiate for him in his episcopal functions. Towards the close of my first residence in Spain, I had some relation with this worthy acolyth of the prelate Lorenzana, the details and result of which, in abridgement, the reader will pardon my presenting, as they concur to prove, that fanaticism, and particularly intolerance, are evils not altogether so hopeless of cure in Spain as is commonly believed; and that in modern times even the clergy of this kingdom produce individuals accessible to reason, and capable of compassion for the weaknesses of humanity.

The agent of a foreign power, obliged by the laws of his country to profess the protestant religion, was captivated by an amiable Castilian. An obstacle of magnitude opposed their union in the invincible repugnance of the catholic family to an alliance with an heretic. The father himself comes to Madrid in order to snatch his daughter from the danger of seduction, and drags her in tears to a distance of thirty leagues from the capital. The lover follows his steps, throws himself at his feet, and moves him to compassion, but cannot shake him from his purpose. It is impossible, says the father, it is impossible I should give my daughter to a person the enemy of God, and of my religion; but be converted, you shall marry her.—The young heretic, however, entreated at least the permission of pleading his cause before the tribunal of the church; hoping to find it less inexorable than that to which he had appealed in vain. The rigid Castilian approved the expedient, without, however, reckoning upon its success.

The stranger bears a gleam of hope away with him to Madrid. He seeks the grand vicar of the Archbishop of Toledo, and thus addresses him:

“ You see before you an unfortunate man, whom it is in your power to restore to happiness. I doat on Dona N—, whom I wish to marry; between us I am told there is an insurmountable obstacle. I was born without the bosom of the Romish church. It were vain of you to exhort me to abjure my errors, nor could you be convinced of the truth of so sudden a conversion. And would that religion you profess, receive any glory from a similar homage? Leave to time, leave to the irresistible ascendancy of Dona N—, the office of bringing me into what you deem, what I perhaps some day may deem, the way of salvation. The honourable employment which I fill is my only means of subsistence. This employment is incompatible with a change of religion. If I fail of obtaining the hand of Dona N—, I shall die of despair; if I cannot obtain her upon any other terms than those of renouncing my faith and consequently my employment, both she and I must die of want. You only, the minister of a God of peace and goodness, you only can conciliate all; and surely as you have this power, you will not refuse my entreaty.”

These arguments softened the austerity of the grand vicar. First of all, said he, I must have assurance that you are free to marry: how will you convince me? Next I must have proof that in your country, the protestant religion is so far national as to exclude the professors of a different one from holding employment, and lastly I must be satisfied by attestation, that you are not far estranged from the catholic church; and that you only require time, the influence of your future spouse, and the instructions of our ministers, to consummate your conversion.

Upon this, the young stranger looks upon himself as secure of success.—Easily can I give you these three assurances; but it must remain with you to appoint the organs through which you will receive them.—Let them be two public characters, in whom

you can confide, and who may be worthy of our confidence. He names the *Chargé des Affaires* of France and that of the United States. They are accepted, and we invited to the grand vicar's. He received us, one after the other, and proposed the three questions, to which we answer in the affirmative. We sign this kind of act of public notoriety, which removes all the scruples of the grand vicar, the archbishop, and the orthodox family. The two lovers are united at the catholic altar, without either being obliged to abjure a creed. They remained faithful to their vow, as well as to the religion of their fathers; greatly intent upon promoting the happiness, and very little about the conversion of each other. If the reading of these lines should chance to occupy a leisure moment in this happy family; upon recital of his alarms, his dangers, his success, the triumph of love over intolerance, obtained by the interference of friendship; perhaps the husband, the father, and the friend, may moisten the page with a tear.

Such was the prelate of Toledo and his principal dependants twelve years ago, and such are they at present. In this instance, they exhibited the first proof of toleration of this description in Spain. Shortly after, another couple precisely in the same situation, availed themselves of this precedent to obtain a similar result.

There are other cases much less rare than those which we have just cited, in which the grand vicar is called upon to interfere in a way much less edifying to manners. I allude to the custom known in the country by the denomination of *Sacar por el vicario*, literally, *to redeem through the vicar*. Any girl above twelve years of age may oblige a youth, provided he be fourteen years old, to marry her, if she can prove that he has anticipated the marriage rites, has promised his hand, or in any shape given her to understand that a union with her was his intention. Her proofs are exhibited before the vicar. If she affirm the youth has had commerce with her and he agree to the charge, he cannot escape matrimony. If he denies it, the proof remains with her; and all that is necessary is for her to produce a neighbour to testify having seen him enter her house at any improper time. A ring, a jewel, a present, even a love-letter, notwithstanding the word marriage may not appear therein, is proof sufficient for claiming a husband.

The intention of such laws is not easily conceived. Does it proceed from a desire of putting young men on their guard, even in the most tender age, against the seductions of the fair? Or have the civil and ecclesiastical authorities united in the design of increasing the number of marriages at the hazard of making many that are bad?

However it may be, upon the plaintiff addressing herself to the vicar, the culprit is conducted to prison, where he remains pending the suit. If the sentence be, *there is cause for a wedding*, the prisoner is not liberated until after the celebration of the sacrament of marriage. Frequently the desire of obtaining one description of liberty causes him to sacrifice another; but it may readily be conceived that fetters thus put on will not be cherished long.

There is another manner of employing the ministry of the ecclesiastical vicar, not less revolting to manners, but no ways so to love. Should a man become enamoured with a female under paternal restraint, who may return his passion and be unable to obtain consent of the father; he applies to the vicar, communicates their mutual inclination, and points out the house in which he wishes the object of his affection to be received, preparatory to the celebration of their nuptials. After ascertaining that their affection is mutual, the vicar sends a commissary to withdraw the female from her father's roof, and conduct her to the place indicated by the lover, and when the case is thoroughly approved, it is thence she is brought to receive the nuptial benediction.

Such in general throughout the Spanish monarchy is the ecclesiastical law in the instance of marriage; but in practice, the greater or less rigour with which these regulations are put in force depends much on the prudence and judgment of the minister of the church; and latterly laws have been enacted which, restoring to paternal authority a part of its influence over the disposal of children, have had for object the prevention of the scandal which is customarily attached to marriages contracted without that respectable concurrence.

But let us return to Toledo, from which digressions have led us somewhat astray. Its cathedral is one of the most valuable sacred edifices in Europe. During four hundred years it was consecrated to Mahometan worship, recovered by Alphonso VI. it preserved the form of a mosque until the reign of St. Ferdinand, who gave it that under which it now appears. It displays all the sumptuousness of Gothic edifices, and in the reigns succeeding that of St. Ferdinand was enriched with every kind of decoration. Several of the chapels are worthy of attention for the tombs they contain. In the choir there are those of four kings of Castile, who are commonly called *Reyes viejos*, old kings, and that of the Cardinal Mendoza, one of the most illustrious prelates who have held the see of Toledo.

In the chapel of the Virgin, Cardinal Portocarrero is interred. The epitaph on his tomb is of a striking simplicity: *Hic jacet pulvis, cinis, et nihil*; "Here lies dust, ashes, nothing."

In the chapel of St. James one pauses, irresistibly fixed before the tomb of Don Alvar de Luna, that illustrious and unfortunate favourite, abandoned to his fate on the scaffold by John II., whose blind partiality had raised him to the pinnacle of grandeur. If we give but common attention to the pompous inscriptions with which this magnificent tomb and that of his wife are covered, one cannot refrain from philosophical reflexions on the instability of the favour of kings.

The same chapel contains several other tombs deserving notice; I shall mention none but that of the ten kings or queens of Castile, which are in the chapel called *delos reyes nuevos*, the most magnificently decorated of all.

The capitulary hall contains the portraits in succession of all the archbishops of Toledo; a valuable collection on account of their portraits, dating from the revival of the art of painting in Spain the different gradations through which it has passed, being clearly distinguishable on comparison; and because since the time of Cardinal Ximenes they have all the merit of resemblance.

In the cathedral are several other paintings worthy of attention. The vestry contains, among others, one by Carlo Maratti, and one by Dominico Greco. The ceiling is painted in fresco, by Luca Giordano.

The cloister of the cathedral contains a painting by an author who deserves to be better known, *Blas de Prado*. The most indifferent connoisseur cannot but be struck by the correctness of the drawing, the excellence of the colouring, and especially the softness of expression in the figures.

The cloister of the cathedral is spacious, and its proportions just. Bayeux and Maella, the two best painters of modern Spain, have traced on its walls the principal events of the life of St. Eugenius and St. Leocadia, the patrons of the cathedral, and of some other saints, famous at Toledo by their zeal for the christian religion.

I might give a long enumeration of the ornaments, furniture and vases consecrated to divine service in this cathedral; a sufficient idea may be formed of them by considering that Toledo is one of the richest sees in Christendom, that it has frequently been held by pious prelates, who would have thought it a reproach on themselves had they made
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a profane use of their opulence, and that it has had many opportunities to benefit by the munificence of the sovereigns of Spain. To the curious is shewn a piece of sculpture, in the very worst taste, and for what reason I know not, called the *Transparent*. It is a modern work, which disfigures instead of embellishing the edifice. There, who will may admire a stone which bears the impress of the feet of the Holy Virgin; she placed them upon it when she descended from heaven to bring to St. Ildefonso the first chazuble or priest's cap; a miracle which a modern sculptor has perpetuated in one of the chapels of the cathedral. The stone which bears the proof of the miracle, is exposed to public view behind an iron railing, which prevents profanation without being an obstacle to homage.

Besides the cathedral, Toledo has five-and-twenty churches and a heap of convents and pious institutions; several of which merit the attention of the traveller. The hospital of St. John the Baptist in particular, which, by the excellence of its proportions and the wisdom of the plan, does honour to the good taste of the founder Cardinal Tavera, who has there a magnificent tomb; the work of Alfonso Berruguete, an able sculptor, of the school of Michael Angelo.

Toledo owes also to one of its prelates (Cardinal Mendoza,) its very handsome foundling hospital, the church of which contains six great paintings of the school of Rubens.

Another asylum for suffering humanity is an hospital for the insane. There are two principal ones in Spain; one at Saragossa, the other at Toledo. I went several times to the latter, and was always surprised at the cleanliness and regularity which I constantly found there; and, reflecting on several similar institutions kept in the same manner, I could not but admire how different this devotion, this Christian charity, which in our days is thought to be treated with mildness when only loaded with ridicule, how different, I say, it renders men from themselves, how powerfully withdraws them from their most habitual vices! On examining the charitable foundations of the Spaniards, the indolence and dirtiness with which they are charged are no longer seen. Had religion conferred but this one benefit upon mankind, it would still be worthy of admiration.

At Toledo there yet remains the wreck of the famous machine, invented by a Cremonian of the name of Juanelo, to raise the water of the Tagus into Toledo; and which for its ingenuity is worthy attention. Near the ruins of this machine there are others more ancient; part of an aqueduct erected to convey, on a level with the Alcazar, the water from a spring seven or eight leagues from Toledo. This is one of those works equally useful and magnificent by which the Romans marked their residence in several places in Spain. On the outside of the city as well, the ruins of a circus are visible, and the traces of an old Roman road.

Thus the Romans, the Arabians, the Goths, and the Spaniards of the time of Charles V. by turns improved and embellished Toledo. I cannot say as much for the modern Spaniards. Houses out of repair, fine edifices going to ruin, few or no manufactures, a population reduced from two hundred thousand to twenty five thousand persons, and the most barren environs; such is the picture which presents itself to the traveller, attracted by the reputation of that famous city. Under the last reign, in addition to the attempts of its prelate to naturalize industry, some successful efforts were made to recover it from the universal decay into which it had fallen. The blades of Toledo were formerly famous for their temper and solidity. Charles III. erected a very spacious edifice for making them; and the experiments already made seem to promise that the modern citizens of Toledo will not in this respect be long inferior to their predecessors.

The inhabitants of this city would scarcely pardon me, were I to pass over in silence their *Cigarrales*. These are little country houses, which I can compare to nothing they resemble more than the *Bastides* which surround the city of Marseilles, except that they are less ornamented, and not so numerous. Thither in the afternoon, during the suffocating heat of the dog-days, the inhabitants go in search of coolness and repose amid the shade of orchards. It is nevertheless impossible to reach them without exciting the sweat of the brow, in crossing some burnt and unshaded meadow, or climbing over rugged hills. They are however the garden of Eden to the inhabitants of Toledo.

I now pass on to other objects which, in the environs of, or at a short distance from, the capital, are worthy the attention of the traveller.

At the *Casa del campo*, an ancient pleasure-house of the kings of Spain, only separated from the new palace by the Manzanares, he will meet with large trees, some good paintings, and an equestrian statue of Philip III.

Villa Viciosa, three great leagues from Madrid, is another royal palace to which Ferdinand VI. was attached, but which has not been frequented by his successors.

San Fernando is a village three leagues from Madrid, for some time celebrated on account of a manufacture of cloths established there. This has been removed to Guadalaxara, but the cloths still preserve their former name. The building in which was carried on the manufactory of San Fernando, formerly animated by industry, is now filled with the impure voices of such wretched prostitutes, as the police of Madrid delivers from vice to condign penitence. Formerly the *Abbeville* of Spain, it is now to Madrid what the *Salpêtrière* is to Paris.

At nearly the same distance from Madrid is a little village less known, but which appeared to me to merit attention; it is called *Loeches*. Here are buried some masterpieces of which the Spaniards themselves are ignorant. The church of a small convent of nuns, founded by the Conde Duca d'Olivares, contains six capital paintings by Rubens, of the largest size and of magical effect. The principal is an allegorical painting of the triumph of religion; it is over the great altar, and unites all the beauties, and even defects, which characterise its author; richness of composition, brilliant colouring, strength of expression, and negligence of design. After this painting, I was most struck with that in which Elias is represented standing in the desert, at the moment when an angel appears to comfort him.

Another object of curiosity, perhaps still more unknown to the Spaniards themselves, is found in the bosom of the mountains of Castile, four or five leagues from the Escorial: this is a monument which has caused much perplexity to some antiquarians, and which they know by the name of *Toros de Guisando*. Guisando is a convent of Hieronymites, placed upon the side of a chain of steep rocks, where, according to tradition, the sons of Pompey were defeated by the party of Cæsar, and where the conquerors, to celebrate their triumph, sacrificed to the gods an hundred bulls, and left the figures of four in stone on the place where they obtained their victory. Another tradition asserts these supposed bulls are elephants, and says, that instead of the triumph of the Romans, they were intended to preserve the memory of the passage of the Carthaginians into the country, who, indeed, have left in several parts of Spain some rude figures of these animals. But, did they most resemble bulls or elephants? This was a question, which in company with three foreigners, as curious as myself, I attempted to decide. We found, in an enclosure of vines, overlooked by the convent of Guisando, four enormous blocks of hard stone, resembling granite; they appeared to me so unshapen, that I was inclined to take them for the sportive productions of nature, rather than the regular works of art. On examining them nearer, we discovered,

covered, or rather guessed, the intention of the sculptor, but the efforts of his chisel have almost disappeared beneath the ravage of time: we found no signs, either of the horns of a bull, or the trunk of an elephant. The form of the ears rather indicate the latter than the former animal; the contours of the rump and flanks are so much worn out of shape, that it is difficult to decide between the two. In short, after an hour's observation, I left the difficulty as I found it. We were almost ashamed of our fruitless journey; and painfully climbed up to the monastery, whence we looked down upon this hieroglyphical monument. We found that there existed no doubt of the manner in which it ought to be interpreted. The first tradition is preserved upon a board, on which we read distinctly, the Latin inscription cut in the sides of one of the blocks, but which are now almost effaced. The principal inscription is as follows: *Bellum Cæsaris et Patriæ ex magnâ parte confectum fuit; S. et Cn. Pompeii filiis hic in agro Bæstetano profligatis.* And another, *Exercitus victor hostibus effusus.* They sufficiently indicate that the monuments were designed to celebrate a victory over the sons of Pompey. It remains to be determined, whether the ground upon which they are placed be the *Agrum Bæstetanum*; and to reconcile the hypothesis with history, which places the defeat of Pompey's party in Andalusia.

The worthy monks, jealous of the renown of their district, found an answer to all my objections, and that nothing might be wanting to my belief, they shewed me the caverns in which the sons of Pompey found their death in seeking an asylum after their defeat. Immediately afterwards they informed me, that these asylums of the martyrs to liberty had fourteen hundred years later become those of the martyrs of penitence; and we were obliged to hear the recital of the retreat of the founders of their order, to the caverns, the detail of their austerities; the monks at the same time pointing out the traces of their steps.

The *Toros de Guisando*, which many people at Madrid think imaginary, are frequently introduced into familiar conversation, to express, in a burlesque manner, the courage of a man capable of facing the greatest dangers; and in this sense, they are used by one of the heroes of Cervantes. When after my return, I said I had seen and touched these famous bulls, I was looked upon as an extraordinary person. The wonder, however, ceased when I had described the enemy whom I had so resolutely braved.

Another district, farther from Madrid, makes a still greater figure than the *Toros de Guisando*, in the fabulous history of Spain; I mean the district of Battuecas, to which Montesquieu alludes in his Persian Letters, when he says, the Spaniards have in their kingdom districts unknown to themselves. According to ancient tradition, the religion, language and manners of Spain were unknown in the Battuecas. Extraordinary voices had been heard there from the neighbouring villages; the shepherds were afraid to approach it with their flocks. Was more necessary to stamp it as the retreat of dæmons or at least of savages? Each related in his own manner the origin and particularities of the place. The Battuecas also furnished a subject for the wits of Spain; they introduced them into comedies and novels; and Moreri did not disdain to give to these ridiculous stories a place in his dictionary.

Father Feijoo, an extremely well informed and intelligent monk, was one of the first who successfully combated these absurdities. The result of his researches, and the little tour I made to the Battuecas a short time before my departure from Spain is, that they are two uncultivated valleys, scarcely a league in length, and so narrow and closely shut in, that it is difficult for the sun to enter them in winter. This little district is remarkable for groupes of rocks oddly formed, for variety of trees, the meandering
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of the little river which waters the valleys, the excavations of the mountains by which they are formed, and the great numbers of all kinds of animals to which they serve as a retreat. The only human habitation, which merits attention, is the convent of the bare-footed Carmelites, whose cells are buried, as it were under the steep rocks, by which they are threatened, and the trees that give them shade. A traveller might make the tour of Europe, and not find a place more fit to become the asylum of silence and peace. The district, which is almost inaccessible, and not upon the road to any city, is scarcely ever frequented. The curious few who go thither, are looked upon as persons of extravagant curiosity by the peaceful inhabitants, who cannot imagine the motive of their visit. Their little district, which they seldom or never leave, is in the diocese of Coria, eight leagues from Ciudad Rodrigo, and fourteen from Salamanca.

Avila and Alcala are two other towns in the neighbourhood of Madrid which a traveller is tempted to visit, on account of their ancient fame.

Avila is situated on a hill twenty leagues from the capital. Its maffy walls, its towers, its alcazar, and the dome of its old cathedral, afford rather an imposing appearance at a distance. But it is impossible to exaggerate its wretchedness and depopulation. The desertion of a number of territorial noblemen who are gone to settle elsewhere, and have left their lands to the management of their bailiffs, is the principal cause of this decay. In the beginning of the present century it had a manufactory of cloth, which did not succeed, and which the council of Castile in vain endeavoured to re-instate. However in 1789, two Englishmen, skilled in the manufacture of cotton, were enticed to Spain. They would have preferred Galicia or Catalonia, in order to be nearer the sea; but government was desirous of having them in the neighbourhood of the court, and consequently fixed them at Avila, in an edifice occupied some years before as a military school. At first the inhabitants were greatly prepossessed against them, and threatened to stone them. Priests had implanted in the minds of these people a belief that these heretics fed on Catholic children. Those in consequence who did not persecute yet shunned them. The peasantry of the neighbourhood went round about to some distance in order to avoid passing by their house. By degrees these prejudices vanished. The inhabitants began to be reconciled to the sight of them, and soon they caused abundance to renew its benefits in the district. In 1792 more than seven hundred persons were employed in their manufactory and its dependencies; and already not a beggar was to be met with in Avila. I saw these two persons introduced to the King at Aranjuez. The reception which they met with sufficiently made amends for the paltry persecutions of fanaticism and ignorance to which they had been subjected. How much are those governments to be pitied who, on introducing useful enterprizes, have to combat enemies of this description! At a distance we are too much apt to judge from consequences, and do not pay sufficient attention to obstacles; whence proceeds a severity of decision which frequently borders on injustice*.

Alcala maintains its reputation better than Avila. The six leagues which separate it from Madrid are rather pleasant to travel over; after the first you arrive at the village of *Canillejos*, surrounded by orchards and gardens; a real phenomenon in the neighbourhood of Madrid. A league beyond you cross the Henaris over a fine stone bridge, leaving *Leganis* on the right, one of the quarters of the regiment of Walloon guards, with *Vecalvaro*, where is constantly a detachment of the Spanish guards, and San Fernando.

* These manufactories of Avila have changed their masters, and gained nothing by the change. The direction of them has been given to the skilful mechanist Belancourt, whose active mind embraces too many objects to enable him to pay sufficient attention to the minutæ of a manufactory. This establishment, which in its infancy promised largely, has almost dwindled to nothing.

On the other side of the Henaris, a beautiful slope begins; you perceive the town of *Torrejon*, beyond which is another stone bridge over the *Tojote*, a small river which in summer is but a streamlet. A little below it falls into the Henaris, which flows at the back of *Alcala*, between rugged and picturesque banks, sufficiently well shaded with trees.

The Henaris, whence *Alcala* derives its surname, runs at some distance from the town at the foot of a chain of hills piled one above another. *Alcala* is still surrounded by walls. It is disproportionately long for its breadth, tolerably well built, and clean; and notwithstanding it contains many churches and convents, and has no other employment for its inhabitants than that of cultivating most excellent fields for wheat, it does not disgust one, like many of the other towns of Castile, by a shocking display of misery. But that its university had for its founder the famous Cardinal Ximenes, it scarcely deserves mention. For the purpose of employing them on an edition of the celebrated Bible, known to theologians by the title of *Biblia complutensis*, he caused several really learned men to establish themselves here, who have been succeeded up to our time by none but pedants.

CHAP. II.—*Road from Madrid to Saragossa.—Of Arragon and its Cortes.—Its new Canal.—Road to Lerida.*

ALCALA is on the road from Madrid to Saragossa, a considerable town, which I visited in 1792, in order to have a view of the canal of Arragon, of which such wonderful things had been told me. I shall conduct my readers thither, and give them an account of this canal, and the province it is intended to vivify.

Four leagues beyond *Alcala* you reach the interesting town of *Guadalaxara*, situated on an eminence at short distance beyond the Henaris. A fine road afterwards leads to the miserable village of *Torrija*; thence to *Granjaneros*, the soil is stony and poor, and the road in the rainy season rather bad. From the top of the hill on which this town is placed, you descend abruptly into a small and very narrow valley, of highly pleasing appearance and cultivated like a garden. It affords the most picturesque prospect of all the road. But beyond *Grajaneros* you travel over a country mournful and bare, until you reach *Bujarraval*, a poor village surrounded by rocks, two leagues from *Sigüenza*. It is still worse before you reach by a rapid and stony descent the bottom of a basin, in which *Fuencaliente* is situated, on the borders of a streamlet. This is a village belonging to the duchy of *Medina Celi*, the principal spot of which fronts you on the brow of the circular hills which form the basin. There, some pretty houses, verdure, and plantations of flax, extended the whole length of the valley, agreeably strike the eye. The traveller is afterwards continually delighted with meadows covered with cattle, and fields in high cultivation, as far as the hamlet of *Londares*, after which you meet at a league beyond with a new village built by the Bishop of *Sigüenza*. Thus we see that prelates in Spain are ever the chief benefactors of their district. A little farther at the summit of a mountain is an old castle, worthy of the best feudal times. Formerly it was doubtless a military station, at present it is a peaceable appurtenance to the bishopric of *Sigüenza*.

From *Londares* to *Arcos* the road is vexatiously full of rises and falls, is very bad, and traverses a horrid country, to the north-east extremity of New Castile. *Arcos* is a miserable but pleasantly situated borough; it is the last in this province, and one of the thirteen belonging to the Duke of *Medina Celi* in this canton. For three leagues, the distance which separates it from *Montreal*, another wretched borough, the first in *Arragon*,

gon, the country is equally hideous, and the roads equally bad. The entrance into *Huerta*, however, claims as an exception a village belonging to a monastery of Bernardines, who spread comfort around them, a culture which does them credit, and shades; a striking difference noticeable in Spain between the possessions of the clergy and those of the richest among the laity, but which is explained by the constant residence of the one, and the perpetual absence of the other. This monastery, besides, contains some remarkable tombs, among others those of several French noblemen who came with the Constable du Guesclin to the succour of Henry de Transilamare. Should the traveller be desirous of spending a few hours in examining these curiosities, he will have reason to be satisfied with his reception by the monks; and will find at their table a compensation for the destitute state of the district.

Montreal belongs to the house of Ariza, whose chief grounds are about a league beyond. The ancient castle pertaining to this house is on an eminence, at the foot of which is a pretty modern dwelling. The river Xalon, which we shall repeatedly meet with, runs close to it, and embellishes and enlivens this little canton. It forms a cascade, and has a bridge over it of a very pretty fancy. The whole of this landscape might advantageously employ the pencil of the traveller.

On leaving Montreal you meet with a rapid descent, after passing which the road is constantly good to *Cetina*. From this village to Bubberca is two leagues of excellent road, between two ranges of hills; at the foot of that on the right the Xalon waters the valley, which is in a high state of culture. Half way this river is crossed over a bridge of stone, and you travel along its banks to *Bubberca*, a village most charmingly situated between the hills in the midst of rocks.

Thence to *Calatayud*, you change horses once at *Ateca*, a village surrounded by orchards amazingly fruitful. I advise the traveller who may pass through *Ateca* to lay in provision of a wine called *Cerinana*, of a partridge-eye colour, its sweet and agreeable flavour will make amends for the dark-coloured thick wine which will be presented him in this part of Arragon, as far as to Saragossa, at which the stomach revolts, and which is certainly the most horrid beverage that ever poisoned man.

On leaving *Ateca* the valley becomes more narrow, but continues beautiful and fertile; it is watered by the Xalon, the course of which between the hills follows their sinuosities. Throughout all Spain I never met with a more pleasing district, none better cultivated than this vale from *Cetina* almost uninterruptedly to *Calatayud*. Trenches are cut communicating by a very simple process with the Xalon, which conduct its beneficent waters to all the grounds in its neighbourhood. It is not in this charming valley that a traveller must seek for the indolence and unskilfulness of Spaniards.

Half a league before you reach *Calatayud* a chain of rocks begin, piled one upon the other, and terminating in peaks, which rather disfigure the beautiful landscape. This town itself is in measure incrustated with them, the greater part being built at their foot, and commanding towards the south a valley which spreads considerably near the town.

The produce of this rich valley consists of corn, wine, pulse, and an abundance of hemp; of which a great quantity is sent into Old Castile, but much more to Bilboa and St. Sebastian. The cordage made of this hemp is used in the royal navy; and government employs commissaries of late years at *Calatayud* for the purpose of making purchases.

There is no oil made in this neighbourhood: however, at *Calatayud* there are twelve or thirteen soap manufactories; the barilla employed in which is brought from the eastern part of Arragon. There is a large demand for this soap throughout Castile.

Calatayud is still not by much so considerable a town as it used to be. It scarcely contains fifteen hundred houses; but in recompence it includes ten churches and fifteen convents, some of which are remarkable for their magnificence, and the extent of ground they are built upon. Calatayud and Tarraçona have a bishop in common, who resides at the latter of these towns. The former is contiguous to the spot where Bilbilis was situated, the birth-place of Martial.

Half a league before it arrives at Calatayud the Xalon receives the Xitosa, which there loses its name, although Lopez, the first geographer in modern Spain, makes it retain it till it disembogues itself into the Ebro. I have thought myself justified in following the opinion of the inhabitants, and the statement of the Abbé Pons.

The country is extremely uneven from Calatayud to the gates of *Fresno*, a town situated in a smiling well cultivated valley. After passing over some hills, the borough of *Almudia* lays before you, surrounded for a distance from its walls by olive-trees, vineyards, fig-trees, and plantations of hemp and Indian corn. Part of the estates of M. d'Aranda lay in this delightful country. It extends to more than a great league from Almudia; afterwards, however, you meet with nothing but heath and the most barren country until you come to the miserable *Venta de la Romera*, and even to the neighbourhood of Saragossa.

At half a league beyond the last place but one for changing horses (La Muela), this celebrated town is distinguished in the midst of a beautiful and extensive plain on the banks of the Ebro.

I shall not enumerate the many sacred edifices contained in Saragossa. The most remarkable are its two cathedrals. The one is the church of *La Seu*, of most majestic simplicity; the other, so famous in Spain, and even throughout the whole Catholic world, and to the description of which Cardinal de Retz did not disdain to dedicate several pages of his memoirs, is that of *Nuestra Señora del Pilar*. It is a spacious and sombre structure, overloaded with ornament, without taste, notwithstanding it was rebuilt at the close of the last century. But the miraculous image, around which there no longer remains a single *ex voto*, nor one of the rich lamps of which the cardinal speaks, is in a modern chapel, formed with superb columns of marble of the Corinthian order. Arragonese devotion owed a homage of no less magnificence to that pious tradition, which states the Holy Virgin to have appeared to St. James, in order to designate her pleasure to have her image placed in a temple on this bank of the Ebro.

The vaults of the part of this church which has been rebuilt have recently been painted in fresco by the two brothers *Bayeu* and *Don Francisco Goya*, all three natives of Saragossa.

In order to trace an additional feature in the history of human stupidity, you must descend into a cell of the church of *Santa Engracia*. There lay the ashes of a crowd of martyrs sacrificed by persecuting Emperors. Lamps of silver are kept burning night and day in honour of them; but the smoke which proceeds from them does not soil. To prove this to the curious, the ceiling is pointed out, which, notwithstanding it be low, is perfectly free from smoke. Such as still have doubts are recommended to hold paper over the lamps. I made this experiment, and must confess that I saw or fancied the paper was not blackened. If I had had any doubts I should have been careful of expressing them before these tolerant exhibitors of this miracle. I felt much inclined, however, to accost them in these terms:—What, shall the Almighty disdain to work a miracle in order to clear the sight of those ministers who oppose the French revolution, which by its recoil from the obstacles raised against it may occasion the overthrow of all

Europe;

Europe; and yet, according to you, be disposed to effect an incessant miracle in this obscure cavern, a miracle too as useless in itself as your existence?

I shall more willingly direct the attention of my readers to the new *Casa de la Misericordia*, the building of which, adjoining to that of the old one, was completed in 1792, and which does no less honour to the intelligence than to the patriotism of Don Ramon Pignatelli. Destitute young people of both sexes here meet with occupation and maintenance. They separate silk, spin and comb wool, which is for this country a valuable production. They manufacture some coarse woollen cloths, camlets, and silk. Out of seven hundred persons contained in this edifice, half are employed by people in the town; for its wise founder (lost some years ago to Arragon and Spain) was persuaded, that without this expedient such charitable institutions would do more harm than benefit to industry. There are besides several manufactories which furnish regiments with cloathing.

Saragossa possesses an academy of fine arts, an insignificant university, and a patriotic society. It encourages all branches of industry, particularly plantations of trees. It has established schools of commerce and mathematics. Don Martin Goyecochea, one of its members, even established a few years back a school for design at his own individual expence. In one word, Saragossa is visibly recovering from its long stupor, and is rendering itself worthy of being the capital of the beautiful kingdom of Arragon.

This kingdom was formerly much better peopled than at present. A vast number of its towns and villages have disappeared. Its population is reduced to 614,000 persons, of which Saragossa contains 42,600. Arragon has figured with glory in the history of free governments*. Notwithstanding the crown was hereditary, each new king was obliged to have his title confirmed by the states, and was not initiated to the sovereignty before he had sworn to maintain their rights. As a counterpoise to the authority of the sovereign, they established a magistrate called *Justicia mayor*, who was accountable for his conduct to none but the states. At the inauguration of the King, this magistrate remained seated with his hat on upon a high tribunal. The King appeared before him uncovered, and took oath, kneeling, to govern according to law. It was at this instant that the proclamation, so much cited formerly, was made: *Nos que valemus tanto como vos, os hacemos nuestro rey senor con tal que guardéis nuestros fueros y libertades; fino no.*

The admiration which this imposing ceremony is calculated to inspire, is somewhat weakened upon learning that it was less before the people, or its representatives, than an assembly of notables, (*ricos hombres*,) whose property was purchased with the sword, that the King thus humbled himself. At first no more than twelve of the ancient families were admitted to the ceremony. By degrees the number was increased, and divided into high and inferior nobility. Among the states the clergy was represented by prelates, and considerable towns sent deputies. But labourers, artificers, merchants, these were excluded from the rank of citizens; so that the people was very incompletely represented. This unshapen assembly of the three orders made laws for the nation. The *Justicia mayor* was the chief restraint upon usurpation, whether on the part of the *Cortes* of Arragon, or that of the King. At length the prelates became devoted to the monarch; the deputies of the towns were not proof against bribery; the King thus by increasing the number of his partisans among these two orders, kept the nobility in curb, and became such as he is at the present day, an absolute monarch. Nevertheless there still exists a shadow of the *Cortes* of Arragon. In 1792 Philip V., in a moment of distress, caused them to be assembled, as well as those of Catalonia, which had not met together for two centuries. The young Queen, in the absence of the King,

* See a work by Adam on American constitutions.

presided over the Cortes of Arragon. She found them little inclined to satisfy her requests, and with difficulty obtained a hundred thousand crowns.

The successes of Philip V., and the resistance he met with from these two provinces, forfeited them the transient title they possessed to his favour. They were treated as conquered provinces, and of their Cortes no more than the wreck we have noticed elsewhere remained. Nevertheless the court of Madrid is not entirely free from the alarms inspired by Arragon and Catalonia, whose inhabitants are prompt to take umbrage, and difficult to train to the yoke of despotism. Those who are supposed to be deficient of devotion to the dynasty of the Bourbons, are looked upon to lean towards the *Arragonesa party*, that is to say, to the disaffected side; and it is to this salutary apprehension that these two people are indebted for a treatment foreign to a constitution which no longer exists but in remembrance.

Arragon contains several towns, besides Saragossa, deserving of mention.

Huesca, twelve leagues distant, is situated in a territory famous for its productions of all descriptions.

Tarragona, thirteen great leagues from Saragossa, is surrounded by a country well planted with trees, and well watered.

Terruel, between Saragossa and Valencia. Its name brings to mind the adventures of two lovers, which have been made the subject of an extremely affecting Spanish drama, and whose dresses are preserved, with a tender and pious respect, in one of the churches of this town.

The little river Turia, before it reaches Terruel, passes by Albarracin, traverses and fertilizes a beautiful plain which spreads beyond the town.

Daroca, on one of the roads from Madrid to Saragossa, deserves to be noticed. Situated at the foot of the mountains on the banks of the Xitoca, it is exposed to frequent inundations. In order to guard against them, a subterranean channel, 780 yards long, has been dug to carry off the water. The banks of the Xitoca are exceedingly fruitful, and produce an abundance of hemp of an excellent quality.

The principal wealth of Arragon consists in its oil, which is sweet, full of substance, and has no unpleasant taste. In Saragossa itself are many olive mills. One of the most remarkable is that belonging to a real patriot, of whom we have before spoken, Don Martin Coyecochea. Such proprietors of olive grounds as have no mills, bring their olives to this. He has collected in his own house every thing for the use of the country people who come for his assistance. This establishment affords a proof of what even a single man can do who has the public good at heart, even in Spain. With pleasure I remarked that the workmen employed about this mill, to the number of from twenty to two-and twenty, were all of them Frenchmen, who annually towards the close of December migrate for the purpose from our southern provinces. Even the country people agree that Spanish workmen would make but bad substitutes for these; neither were they less pleased with their decorous behaviour than with their superior intelligence. There are, however, other mills at which Spanish workmen are employed near to *Monte Terrero*, a place in the neighbourhood of the town which has recently been levelled, and planted with vines and olive trees; there is one for the olives produced upon the lands appertaining to the canal of Arragon, and those paid as contributions by the proprietors whose grounds it irrigates.

I shall now give some account of this canal, the chief object of my excursion into Arragon.

It passes half a league distant from Saragossa, below *Monte Terrero*. There are its magazines, in which are deposited grain, timber, iron work, and utensils. These edifices,

ices, remarkable for their solidity, contribute to the embellishment of the canal. There it was that I went on board a yacht to visit six beautiful locks a great league below Saragossa. Half a league beyond these are four others, which receive the canal upon its issuing from a large basin, on which you embark to ascend it to its source.

Recommended to Don Ramon Pignatelli, the true creator of this canal, a masterpiece of Spanish industry, I was enabled by his means to make this little water excursion with convenience and advantage. At eight o'clock in the morning I embarked in a large boat under the management of Don Juan Payas, director of the canal. At noon we stopped at the most remarkable spot, where the canal runs in a channel of stone seven hundred and ten toises in length, over the course of the Xalon, which flows beneath this stupendous piece of masonry. This part of the canal was the most expensive of any. Its cost is estimated at 13,000,000 of rials (nearly £150,000 sterling). We slept at *Canalista*, another station worthy of remark. The old canal from the Xalon, cut for the purpose of irrigation, proceeding from the west, takes its course here over an aqueduct of stone built over the canals, and afterwards directs its course eastward towards *Lucena*.

The next day we admired the works of *Gallar*, a village on a naked slope on the banks of the Ebro, which hereabouts approaches very nigh the canal. The inequality and ruggedness of the ground which it has here to pass over required solid and very expensive works. A little lower down, the canal runs in a channel of stone cut through very high hills. This work is not new. Under Charles V., the first author of the canal of Arragon in this part, it ran under ground, all therefore that was necessary at the present time was to open it anew.

Half a league beyond Gallar you perceive the Ebro, and, in the distance on the other side of its right bank the village of *Tauste*, which gives its name to a canal entirely modern. For that which we are at present passing over is, properly speaking, the imperial canal began by Charles V., but which, interrupted by the distractions of his restless ambition, he was obliged to discontinue, and which remained unregarded till the year 1770. Since then it has made but slow progress, and perhaps would not have made any, but for the rare perseverance of Don Ramon Pignatelli. As you approach the mouth (*El Bocal*), that is to say, the place where the canal begins, it is divided in two by a small island. On the right, is the old canal of Charles V., on the left, that which has been lately made. Shortly afterwards we pass under the bridge of *Formigalis*, near which the latter canal increases its breadth, and forms a superb sheet of water. Under this bridge, of a single arch, is the first place at which the canal disembogues itself, (*alminara de disagua*.)

There are to be five bridges over this canal between Gallar and El Bocal. Built at first of wood, they have been or will be successively constructed of brick.

Two leagues from El Bocal, after passing the old castle of *Mallen*, we enter the kingdom of Navarre. Thence the canal commands a vast prospect over a plain covered with pulse and maize. Below *Formigalis* we find the bridge of *Valverde*, the confines of Arragon on that side. At length, we reach the Bocal, which is a quarter of a league beyond *Formigalis*.

There the Ebro, through a cut a hundred and eighteen toises long, and seventeen broad, enters the bed of the canal by eleven mouths, which are never opened all at a time, and over which the new palace is built. In front of one of the sides of this edifice is the extensive sheet of water formed from the Ebro, and on the right, the cascade.

The first story of the palace comprizes a suite of apartments for the governor of the establishment, which were finished in 1787. The other buildings adjoining are warehouses for wood, planks, and ironwork. The tavern, which is spacious, is well managed

managed by a landlord from Thoulouse ; the chapel and the old castle are a quarter of a league distant from the bridge of Formigalis.

After having minutely examined this canal ; after noticing how well every thing has been foreseen, how well every thing has been planned and executed ; and joining to this grand undertaking many other monuments and establishments dispersed over modern Spain ; it is impossible to retain any longer those unfavourable prepossessions against its inhabitants, which exist in the minds of a great part of the population of Europe, or not to allow, that, if they are tardy in their measures, they yet complete many things with intelligence, solidity, and even with magnificence.

The canal of Arragon seems to re-unite all these qualities, and its utility is already attested by seventeen years experience. In the month of August 1792, it might produce 2,000,000 of rials, more than half of which was consecrated to the payment of persons employed, and the remainder was set apart for the continuation of the works. The sources of this revenue are the produce of the land for several toises in breadth on both its sides, and the contributions in kind paid by all the land it irrigates. Those previously cultivated pay a fifth of their crop ; the lands newly broke up for tillage a sixth ; and vineyards, olive-grounds and orchards, an eighth or ninth part. At the epoch adverted to, one hundred thousand acres were watered by the canal ; and estates which a few years before sold for from 100 to 150 rials per acre, had risen to the value of from 4 to 5000 ; can a better apology be possibly adduced for canals, and for that of Arragon in particular ? After this, will it be credited that funds could be wanting for its completion ? Yet in 1793 such was the case. It stopped at *Cartuxa baxa*, a great league below Saragossa, and with regret I learn, that since then it has made no progress ; that the managers have been entirely destitute of funds for the continuance of the works, and that those which were finished were suffered to fall to decay. These are the results of the last war. Such is the fruit of intrigue and envy !

This canal is to have in all thirty-four locks. From Tudela to Saragossa none are necessary ; but from the last town to Sañago, where the canal is to join the Ebro again, the elevation of the ground renders them indispensable. In 1793 no more than six were finished. The expence of the remaining twenty-eight ought not to create dismay. Those already made had cost no more than 200,000 rials each. The residue therefore would not require more than 6,000,000 (about £68,000.)

For the advantage of the canal there have been contrived,

1st, Sluices (*almenares de desagua*,) for taking off the superfluous waters.

2dly, Cuts for irrigating the neighbouring land (*almenaras de riego*.)

3dly, Small bridges, or *alcantarillas*, to carry it over ravines. In some places the neighbouring roads pass under the canal.

4thly, Superficial currents (*corruntes superficiales*,) by means of which the land floods are conducted over the surface of the canal, after depositing in a sort of well the stones, mud, and gravel which they sweep along with them.

When desirous of cleansing the canal, it can be left dry in four or five hours. At the same instant all its sluices are opened, and the waters by channels more or less sloping empty themselves into the Ebro.

The drain from this river below Tudela does not perceptibly lessen its stream ; for there are more precautions necessary against its superabundance, than a scarcity of its waters ; but every thing is so excellently combined, that the quantity requisite for the canal is computed to the most exact nicety.

Spain has no establishment that promises greater utility. For a long time the course of the Ebro had been an insufficient means of communication for the three provinces through

through which it flows, Navarre, Arragon, and Catalonia. The canal which is to compensate for its insufficiency will run twenty-six great leagues from Tudela to Sastago. At the latter place the Ebro begins to be navigable, at least requiring little to make it so, as far as Tortosa, whence it is navigable to the sea. Along this river is another canal eleven leagues in length, which was finished even before the time of Charles V. It is that of *Taufo*. Intended solely for irrigation, it has become neglected, and is consequently of very little service. The directors of the new canal engaged to re-establish the old; but until the new cut be made to supply both canals, they have suffered the old one to remain, which is about half a league higher up.

The Ebro itself, however, is not entirely useless to the countries through which it flows. But navigable for no more than four or five months of the year, from Saragossa to the sea; it is but partially beneficial to navigation, and cannot be employed to water the meadows. The new canal answers both these purposes. Its least depth is nine feet, and the largest vessels employed upon it are of 135 tons burthen.

El Bocal is very near to Navarre. The village of *Fontellas* is situated on an eminence nigh the canal. You pass through it to go to Tudela, two leagues distant, which is the first town on that side of the kingdom of Navarre.

On leaving Fontellas you meet with a specimen of the superb roads with which this part of Spain, owing to the care of its viceroy Count Gages, was furnished before any other; roads which pass from one frontier to the other of Navarre. It is known that one of the roads which lead from France to Spain is that from the French or lower Navarre to the upper. This journey is begun on horseback, or on a mule, at St. Jean Pied de Port, a small town, situated at the foot of that very steep ridge of the Pyrenees called *Altovizar*; it takes two or three hours to clear it and reach *Roncevalles*, situated at the bottom of the opposite side of the Pyrenees. *Roncevalles*, a name famous in romance and fabulous history, is at present no more than a village, containing some tolerable inns and a monastery of regular canons.

Thence to Pampeluna is six leagues of excellent road through deep vallies, and rather lofty mountains, both partly covered with wood. On the way you have the valley of Bastan on the left, which up to the present day has been the theatre of continual quarrels between the borderers. After traversing the valley it may readily be considered a proper apple of discord. It is five or six leagues in diameter. The *Bidassoa* has its source therein; it does not produce much corn, but abounds in fruit and maize, and its meadows are covered with sheep.

Pampeluna, the capital of Spanish Navarre, and residence of its governor and viceroy, is built on an eminence on the banks of the little river *Arga*. It contains but three thousand houses at present; it is protected by a citadel and a fort, and in 1795 preparations were made there to resist our victorious arms. The six leagues from Pampeluna to Tafala traverses a rich and well peopled country. The distance from Tafala to Tudela is eleven leagues, the six last of which is also through a well cultivated country, if the *Bardena del Rey* be excepted, an uncultivated district, but which furnishes excellent pastures.

Tudela, a great league from the frontiers of Arragon, is a middling-sized town, tolerably well built. At the extremity of the wide street, which intersects it lengthways, is a stone bridge over the Ebro; when you have crossed this bridge, the superb road of seventeen leagues to Pampeluna begins. The territory of Tudela, known only for the production of its red wine, is adapted to all species of cultivation; but the misconceived cupidity of the rich proprietors to whom it belongs, has consecrated it to the sole

culture of the vine. *Peralta*, which furnishes a wine of some celebrity, is a few leagues distant from Tudela, pretty near the road to Pampeluna.

The kingdom of Navarre, taken by Ferdinand the Catholic from John D'Albret, forms a distinct province, the same as Biscay, which preserves its customs, privileges, and separate tribunal, and is looked upon in many respects as beyond the frontiers. The greater part of foreign merchandize is admitted free of duty, not being examined until its arrival at *Agrada*, the first custom-house of Castile towards Navarre.

But let us re-enter Arragon, and leave its canal, which, even as it is, deserves the admiration of all persons conversant in useful and solid works, and of every friend to the public good. Were it never to be completed, enough has been done to immortalize the name of Don Ramon Pignatelli, who, in despite of the double title he possessed to be inactive, that of his rank in the church, and that of his illustrious origin; in despite of intrigue, and the coolness of the court, was one of the most diligent, most enlightened, and most estimable men in Spain*.

Saragossa is on one of the roads from Madrid to Barcelona; but this road is one of the worst in Spain, and gives no very favourable idea either of Arragon or Catalonia. In particular, nothing can be imagined more destitute or hideous, than a great part of the country you pass over from Villafranca, at which place you lose sight of Saragossa, to two leagues beyond the wretched borough of *Fraga*, situated on the banks of the Cinea, and at the foot of a steep and almost impassable mountain, which you have to cross before you reach Lerida. Passing Villafranca you arrive at the *Ventu de San Lucia*, the most disgusting inn in Spain. Thence passing through the borough of *Bujaraloz*, the miserable village of *Candasnos* presents itself, separated from Fraga by five leagues of the most frightful country. Catalonia begins on the other side of Fraga. Lerida is at about the same distance; but in another part I shall speak of this important town, and the twenty leagues of road between it and Barcelona.

In the interim, let us proceed to the south of Spain, beginning with the elegant residence of Aranjuez.

CHAP. III.—Description of Aranjuez.

THE road from Madrid to Aranjuez is one of the finest, and kept in the best order of any in Europe. You see before you the broad and long bridge leading to Toledo, a massive structure, whose parapets are loaded with ill-chosen ornaments. When the Manzanares is very low the bridge may be avoided, (which saves a quarter of a league,) by crossing, over a small bridge, the canal intended to join this small river with the Tagus, and which, begun under the administration of M. de Grimaldi, was given up for want of funds, after it had proceeded about three leagues, and for want of such persons as Don Ramon Pignatelli, worthies very rare in Spain. The only revenue derived from it is the produce of a few mills; and this is absorbed by the repair of bridges, sluices, and the salaries of persons employed. For in almost every part, scarcely is an

* After the death of Don Ramon Pignatelli, the Count de Softago, individually interested in the canal of Arragon, was nominated *ad interim* to the superintendence thereof. This office was afterwards delegated to the directors-general of bridges at Madrid. It is not likely that, under the management of a body distant from the spot, and whose attention is occupied by so many other concerns, the canal should attain perfection. At present it is employed either for navigation or irrigation, only from Tudela to a league beyond Saragossa.

establishment begun, before the expences of supporting it are as considerable as if it were completed.

The Manzanares is fordable a little beyond, and on the other side begins the fine road of Aranjuez, whence are seen different groups of olive-trees. After having journeyed six leagues, on a very straight and even road, you descend to the charming valley of Aranjuez. The Xarama, which you cross over a very fine stone bridge, runs at the foot of the hills, by which the river is formed, to the north. As soon as you arrive in this valley, the dry and naked plains of Castile disappear, and you perceive a change both of soil and climate; here you travel in the shade of lofty trees, and distinguish the noise of cascades and the murmur of rivulets. The meadows are enamelled with flowers, and the pastures display the most lively and variegated colours. Vegetation appears in all its richness, and bespeaks the neighbouring river, which, with its beneficent waters, fertilises and vivifies the landscape. The Tagus, which enters the valley at the east end, runs in meanders for two leagues, and, after having reflected the images of the most beautiful plantations, joins the Xarama.

The embellishments of Aranjuez are modern. The first Spanish monarch who resided there for any considerable length of time was Charles V. He began to build the palace which his successors inhabit, and to which Ferdinand VI. and Charles III. have each added a wing. In this new form, it has more the appearance of a very agreeable country-house than a royal mansion. The Tagus, which runs in a right line to the eastern front, glides by the parterre, and forms almost under the windows an artificial cascade.

A small arm of the river escapes at the cascade, and so closely washes the walls of the palace, that from the terrace the monarch may take the diversion of fishing. This arm afterwards rejoins the river, and thus forms a pleasant island, which is a vast garden of an irregular form, in which there is constant shade and fresh air at all times. Wandering amid the labyrinth of the winding walks, one enjoys the luxury and calm of nature, and may imagine one's self far from courts, in the midst of rural solitude. Lofty trees, high walls of verdure, and fountains simply adorned, these are the ornaments of the garden of the *isle*. Its magnificence increased would but diminish its charms. Charles V. and Philip II. would find some difficulty in recognizing Aranjuez, which by the attention and improvements of the two last kings has been rendered one of the most pleasing palaces in Europe. The principal alleys, that especially of the *Calle de la Reyna*, which is the favourite walk of the court, were planted long before their time. The height of the trees, their enormous trunks and thick foliage, attest their antiquity and the fertility of the soil in which they have flourished for many centuries. But these are not the only ornaments of the valley of Aranjuez. Under Ferdinand VI. this palace consisted of little else than the castle. A few poor houses scattered over uneven and rugged ground at some distance from the royal habitation, served to lodge ambassadors and the nobles and gentry who followed the court. These huts have been replaced by regular and elegantly simple buildings. The principal streets are shaded by two rows of trees, watered by a running stream, they are all built in a straight line and very wide, perhaps too wide for the height of the houses and the heat of the climate. The plan, after which the new village of Aranjuez is built, was given by the Marquis of Grimaldi, who, before he became ambassador to France and first minister to His Catholic Majesty, had resided at the Hague as his representative, whence he gathered the idea of establishing a Dutch town in the centre of Castile.

The village is separated from the castle by a large but irregular square, adorned by a fountain. Charles III. constructed a portico, which almost entirely proceeds from the

the end of one of the principal streets, and forming a part of the inclosure of the square, joins the buildings belonging to the palace.

It would require too much time to conduct the reader through all the fine plantations of Aranjuez; I shall speak only of the principal. Arriving from Madrid we cross a circular space called *Las doce calles*, from twelve allies which there terminate. One of the allies leads to the entrance of *Las Huertas*, a large orchard, in which we cannot but admire the astonishing fertility of the soil of Aranjuez. If the traveller wishes to see more rich cultivation, and on a larger scale, he must take the road to Toledo and cross the *Campo Flamenco*, which undoubtedly takes its name from the resemblance it bears to the delightful fields of Flanders. The *Cortijo* is also worthy of his particular attention. This is a large expanse closed by a latticed barrier, within which the soil, cultivated with particular care, usuriouly repays the labours of the husbandman, and the attention of the King, who has caused it to be planted with vine-suckers from different parts of his kingdom.

Lastly, the *Huerta de Valentia* presents the traveller with various new and successful modes of cultivation, and gives him a pleasing idea of that kingdom. Besides fields of flax, vineyards, and artificial meadows, there are mulberry plantations, and a building consecrated to the produce of silk-worms. But the *Calle de la Reyna*, which forms the angle of the plantations of Aranjuez, is that which is most known and remarkable in them. Its direction, for about half a league, is from east to west, and its termination at the foot of a stone bridge thrown over the Tagus. It is renewed on the other side, continues to much the same distance, and again terminates with a bridge over the same river, the windings of which can only be seized by the imagination, as it strays through a valley shaded with groves of high trees and trellises, which at intervals conceal its course. Behind one of these thick curtains a cascade is heard at a great distance, the noise of which alone disturbs the tranquillity of this solitude. The intention of it is to carry off a part of the waters of the Tagus. The branch of this river thus turned from its bed, runs in a made channel through a deep ditch, and proceeds to water part of the plantations of Aranjuez, and supply the necessities of its inhabitants. But shades and verdure of a sudden cease, nothing now is seen before you but hills piled on each other, which close the valley, and whose aspect it has been the work of art to conceal, in order to prevent the deadening effect it would otherwise have on the landscape. At the foot of these hills are stables of breeding mares, belonging to the King of Spain, and in which the breed of Spanish horses is still preserved in all its ancient beauty. The building has for inscription *, *Vento gravidas ex prole putaris*. The swiftness of the horses bred here justifies the inscription.

The King attaches great importance to the prosperity of the breed of Aranjuez; notwithstanding this the embarrassments consequent on war suspended the attention requisite to such an establishment. But in 1796 a council was formed exclusively charged with this task, under the title of *Supreme Junta of Equitation*. The breeding stud of Aranjuez consists at present of four hundred mares, and twenty stallions. In addition to this, the Prince of the Peace, who is particularly attached to whatever relates to the cavalry, maintains himself eighteen stallions, and one hundred and fifty mares. Aranjuez possesses likewise a breed of mules; for these beasts, of mean appearance it is true, but extremely serviceable and beautiful of their kind, are not to be scouted entirely. There are therefore eighteen stallion asses, and three hundred mares kept on the same establishment, as their more elegantly formed rivals.

* By their progeny you might deem them impregnate by the winds.

Leaving

Leaving this establishment on the left, you re-enter the grand rows of trees which end at La Calle de la Reyna (Queen's-street).

The high trees, of which I have spoken, are not the only ornaments of this alley. On the right it is edged with copses, which render its regularity more agreeable. Here skipped along or grazed the numerous herds of deer in the reign of Charles III., which have been destroyed by his successor.

But the garden of the *Primavera*, or the spring, is the greatest ornament of the *Calle de la Reyna*. Under the reign of Charles III. it extended no more than a thousand paces along the Calle de la Reyna. Charles IV. continued it as far as to the Tagus.

Nothing can be imagined more delightful than this garden during the season of which it bears the name. Here the fertility of the soil of the valley appears in all its richness. Useful culture is not forgot. Flowers, vegetables, fruit of every kind flourish in perfection. Groves yield hospitable shelter against the noontide heat. Copses of odoriferous shrubs perfume the morning air, and the balmy vapours they exhale decline again at sun-set to charm at the evening walk. Seventeen years ago, all the ground between the inclosure of the garden and the banks of the Tagus was uncultivated, and overgrown with noxious weeds. His present Majesty, then Prince of Asturias, by his taste and attention, converted this into one of the most pleasing parts of the valley. He ordered some useless trees, which shaded this fertile spot, to be cut down; grass plats, shrubberies, and parterres have succeeded them, and paths wind across this new treasure of vegetation. In the interval between spring to spring a vast garden was produced, infinitely varied in its form as well as productions.

A little dock yard is contrived within its inclosure, and communicates by an easy descent with the Tagus. In this yard are carried on the works of a navy in miniature, which has its builders, sailors, and vessels. Farther on is a kind of port, defended by a proportionate battery. There are likewise little vessels elegantly decorated, the guns of which reply to the artillery of the port. The noise of their cannon, the huzzas of the sailors, and the display of the flags and streamers, induce the spectators to imagine themselves present at the games of Neptune and Mars. Happy were men, if every where content with such mimicry; if a thirst after fame and riches no longer converted into means of destruction the properties of elements which nature intended perhaps but for their pleasures!

Every country amusement may be enjoyed at Aranjuez; hunting, fishing, walking. Walks are no where more varied, more commodious, more agreeable; whether with a book you wander through the shrubberies, or thread the long alleys on horseback or in a carriage.

Formerly the deer there forgot their timidity, and in company with wild boars, were met with in the streets. They might have been taken for domestic animals.

The buffalos brought thither from Naples are substituted for oxen, as working cattle. I even saw camels patiently apply their robust strength to hard labour, but they were unable long to resist the influence of a foreign climate. At the same time, two zebras grazed in a meadow near the high road, as also two guanacos, which seemed as perfectly at their ease as in their own country; whilst an elephant calmly moved his unwieldy frame along, without being in the least discomposed by the crowds of people, whom curiosity brought about him. It is in this manner that sovereigns should openly expose the foreign animals which they crowd together in their menageries. These magnificent prisons accuse man of tyranny without proving his power. The Kings of Spain are at least devoid of this reproachful magnificence. In the gardens of Buen Retiro they have lions shut up in small buildings, whence sometimes their threatening roar is heard.

heard. They have a beautiful preserve of pheasants in the interior of the gardens of Saint Ildefonso. But no, where have they, properly speaking, a *menagerie*.

Those which more especially contribute to the embellishment of Aranjuez are horses. There they have room to display all the beauty of their motions and their speed. Thither the King occasionally brings the magnificent sets with which his studs supply him.

Formerly the *Calle de la Reyna* was the course where horses from Barbary displayed their swiftness, and each had his partisans among the courtiers, who betted on his head.

The reigning monarch, then Prince of Asturias, substituted instead of these, games, called *Parejas*. A squadron was formed of four abreast and twelve deep. The files were commanded by himself, one of his two brothers, and one of the principal persons of the court, each with a distinguishing colour. The forty-eight cavaliers were all clothed and accoutred in the ancient Spanish manner, a uniform advantageously calculated to give to the whole a military and antique appearance, and to carry back the actors to the age of their ancestors. They were looked upon with all that interest which the image of things past generally excites, as they advanced in column on one of the large courts of the castle to the sound of trumpets and kettie-drums, preceded by running footmen, and led-horses richly caparisoned, all at once dividing, galloping away from each other, then again approaching, now at full speed round the arena, and now crossing it diagonally, thus displaying all the grace of their beautiful racers. This cold, this feeble representation of the ancient tournaments, reminded the spectators of those regretted festivals at which, under the eyes of the sovereigns, and beauties of the age, the knights obeyed the double impulse of love and fame, and obtained in the suffrages of those who reigned over their hearts an inestimable recompence for their courage and address. And in order even to make the most devoted courtisans take any pleasure in this modern dance of centaurs, it was necessary that the sons of their King, for whose amusement it was established, should be co-actors in the arena.

The King for some years back has laid aside this amusement, and adopted others more conformable to his taste. One that appears to be most pleasing to him, is to attend the trying of artillery in the *Huerta de Valentia*, the noise of which disturbs the calm of this charming residence, more frequently than is agreeable to the ladies, or those of effeminate manners.

But he particularly delights in embellishing his garden, a part of which is now surrounded by the banks of the Tagus. A sort of pond has been made here, in the midst of which is erected a kiosk, a small Greek temple, and, on a heap of rough stones, or rather a rock, is an Apollo in marble. In the neighbourhood there is a barge in the Chinese taste, fitted up for navigating this artificial lake; whimsical union of irrelevant objects, the trivialty of which is striking, notwithstanding expensive decorations! But nature here has done so much; flowers, exotic plants are found in such plenty; foreign trees, the most singular and beautiful, and particularly long rows of weeping willows and catalpas succeed here so well, and yield so cool a shade; so many means of watering, such a variety of prospects in despite of the evenness of the ground exist here, that the garden of Aranjuez forms, without doubt, one of the most agreeable promenades in Europe. The tribute which thus I pay is due to this spot in return for the delightful hours that I have passed under its leafy shades, as wandering through its mazes of flowers and verdure, I diverted my mind from the cares of a troublesome negotiation with the enjoyment of the vegetable riches of *the new and the old world*.

The new palace and other edifices are of a pleasing form, void of magnificence. The royal apartments in the reign of Charles III. contained few paintings of value. They have however lately been much enriched by the spoils of St. Ildefonso, and contain now

more than four hundred paintings, among which some by Guido, Guercino, Lanfranc, Poussin, &c. The new chapel of the castle is of a good style. Sculpture and gilding are therein distributed with taste, without profusion, and a few pieces by Mengs contribute not a little to its decoration.

Aranjuez contains three churches. The most recent is that of the convent of Franciscans, called St. Pafchal, and was founded by the confessor of Charles III. in the most elevated spot of the whole residence. I remarked, in the vestibule of this convent, pious stanzas of a singular kind.

Opposite to this church is a royal hospital, extremely well placed and worthy of notice for the assistance of every description afforded through its means to the sick.

Sickness is very prevalent in this abode of Aranjuez, in other respects so engaging. As long as the temperature of the air is moderate, every thing about the palace charms the senses, and the happiness of existence is perfectly enjoyed; but soon as the violent heats of summer begin, when the scorching air, shut in by the valley, is loaded with exhalations from a slow and muddy river, and with nitrous vapours drawn by the sun from the hills between which the Tagus runs, this valley of Tempe becomes a pernicious abode, "*capable d'enrichir en un jour l'Acheron* *." The inhabitants withdraw from it, and seek, upon the neighbouring heights, particularly at Ocanna, a more wholesome atmosphere. Aranjuez, which, during the month of May and half of June, contains about ten thousand inhabitants, and is the resort of those who wish either for health or pleasure, becomes a desert exclusively inhabited by wild boars and deer. Few persons remain there, except those who are attached to it either by profession or poverty.

Formerly the King did not use to repair hither until after Easter, and remained until the end of June. The new court, which prefers Aranjuez to all its residencies, now goes there as early as the beginning of January.

Aranjuez is on the road from Madrid to Cadiz. I shall now trace it in company with my reader.

CHAP. IV.—*Road from Aranjuez to Cadiz.—La Mancha.—Colonies of Morena.—Baylen.—Anduxar.—Cordova.—The kingdom of Granada.*

IT is only since 1785 that it has been possible to travel post from Madrid to Cadiz. Until then this mode of travelling was utterly unknown in Spain, excepting on the road from the capital to the residence of the court at the time †.

Two leagues from Aranjuez you meet first with the little town of *Ocana*, remarkable for its school of cavalry, which, under the auspices of General Ricardos, has been for these several years in a state of prosperity.

On leaving *Ocana* the eye takes in a vast plain perfectly flat, the first specimen of *La Mancha*. Next succeeds *Guardia*, which, if the church be excepted, appears a heap of ruins; afterwards *Tembleque*, a town of one thousand five hundred houses, not destitute of industry. Some little saltpetre is extracted from the ground about it, no embellishment to its neighbourhood. *Tembleque* has a tolerably pleasant promenade; an invaluable property in the arid plains of *La Mancha*.

* Capable of enriching in one day the ferryman of hell!

† Within these few years a traveller may go post in several different directions particularly from Madrid to Cadiz, in small chaises, which are furnished by the post-masters, although the custom of travelling in *coches de colleras*, drawn by six mules, be still prevalent as well as in *carrioles* drawn by two. There is a cheaper mode of travelling on the back of a mule preceded by the gaidaro toot, or with messengers called *ordinarios*, who go at stated periods from one great town to another, but in Spain, properly speaking, there is no stage; that between Bayonne and Madrid being discontinued.

The following post-house is one standing by itself, called *Canada de la Higuera*, the most miserable inn on the road.

Two leagues farther is *Madridejos*, a pretty village, on leaving which one is agreeably surprized to find, in the midst of plains totally deprived of verdure, a row of white elms, some garden grounds, and a few tufts of trees, *rari nantes in gurgite vasto*.

At the end of three leagues of perfectly level and unvaried country, you arrive at *Puerto Lapiche*, a small village at the foot of two hills, near which Don Quixote, at the beginning of his career, equipped himself as a knight.

At *Villalta* coarse cotton cloths are fabricated. Before you arrive there, you cross a long and narrow stone bridge, on each side of which is a large pool of standing water covered with marshy plants. This species of morass is the river Guadiana, which, at some distance thence, hides under ground its lazy waves entirely, and re-appears afterwards at a place called *Los ojos de Guadiana*, traverses Estremadura and a part of Portugal, and then falls into the sea, dividing the latter kingdom from Spain.

Five great leagues separate *Villalta* from *Mançanares*, one of the largest towns of La Mancha, and one of the principal quarters of the carabineers; and where to counter-balance the abundance which they spread throughout the district, they are rather too prone to violate the laws of hospitality, setting good manners at defiance.

The wine of the neighbourhood of *Mançanares* is little inferior to that of *Val de penas*, another town four leagues distant. The whole of this district is the true country for good La Mancha wine. It is of two sorts. The first of a deep ruby tint, possesses more body and strength than any of our wines, if those of the banks of the Rhone and Roussillon be excepted; but there is little free from a taste of pitch, which it contracts from the vessels in which it is customarily kept. The white wine is less common than red. Its tint approaches that of Champagne, but it is somewhat rough. It is exported to England and America. The red wine is mostly consumed at home.

Santa Cruz, two leagues beyond *Mançanares*, is the chief of the estates of that grandee of Spain, who is grand master of the King's household, and governor of the Prince of Asturias. After this, you arrive at the small village of *Almoradid*, where the immense plains of La Mancha terminate southward.

Perhaps all Europe does not contain a district more level than that which one has to pass over for two-and-twenty wearisome leagues from Tembleque to Almoradid. Nothing can be more monotonous than the prospect of this immense horizon. During two or three hours travelling not one single habitation exists on which to rest the eye; it wanders over vast fields not in the highest state of cultivation, although nothing but the excessive drought prevents a display of the excellence of the soil. Some straggling plantations of olive-trees, planted at great distances apart, interrupt at times the uniformity that reigns through the country.

This province however is not throughout its whole extent so even as that from Madrid to Cadiz. To the west of Tembleque and Madridejos, are large valleys, less bare than its plains. Charles III. was accustomed to go every other year to the neighbourhood of Yvenes, a village situated twelve leagues from Aranjuez. It commands a large and beautiful valley in which are olive plants in profusion, and on the opposite side rises, above a chain of hills, the old castle of *Consuegra*. The town of that name, of fifteen hundred houses, is at the foot of the castle. It belongs to the grand priory of Malta, which was held by the Infant Don Gabriel. This prince, who will long be regretted in Spain, who loved the arts and his country, delighted in embellishing the environs of *Consuegra*.

La Mancha, so well known by its wines, so much better by the exploits of Don Quixote, whose historian was as correct as a geographer, as faithful as a delineator of the manners of this part of Spain; La Mancha contains many places more remarkable than those celebrated by Cervantes. *Ciudad Real* is its capital. It was formerly the principal residence of the old *Santa Hermandad*, previous to the King St. Ferdinand; its object was to purge the country of the thieves with which it was infested. It has at present a poor-house, which it owes to the humanity of the Archbishop of Toledo, who felt for the indigent part of his flock dispersed throughout La Mancha. It is a superb edifice, which in 1790 had already cost more than 2,000,000 of rials. Almagro, another town of three thousand inhabitants, is in the middle of a very extensive plain, four leagues from Santa Cruz. You arrive at the former from the latter place, passing over a country entirely uninhabited through immense pastures.

But let us resume the road to Cadiz. On leaving Almoradid you approach the *Sierra Morena*. Four-and-twenty years ago, in order to avoid this district, the dread of travellers, you were accustomed to turn more to the west, in order to reach the chain of mountains, known by the name of the Sierra Morena, or the black forest. After passing the borough of Viso, one was used to cross it at the peril of one's life in one of its steepest parts, called *El puerto del Rey*. Le Maur, a Frenchman, attached for a long time to the corps of engineers in Spain, was selected in 1779 by Count Florida Blanca to make this road, the most frequented in Spain, at least passable. He has substituted for the old road one of the finest in Europe, notwithstanding the difficulties opposed by the nature of the ground it had to traverse. He constructed bridges, slopes supported by masonry, and walls high enough to afford support, slight ramparts, sheltered by which you drive fearless and without danger over the brink of precipices. In this manner you arrive at *Despenaperros*, a spot at which the rocks approaching each other seem disposed to form a vault over the head of the traveller. At the bottom of the valley, a rivulet rushes along with great noise, the waters of which are intended to supply a canal projected by this skilful engineer. A little farther is the post-house of *Las Correderas*, surrounded by a group of huts in midst of the mountains.

Hence with little trouble you ascend as far as to La Carolina, a town entirely modern, the chief place of the colony of La Sierra Morena. The flourishing state to which it was carried by Don Pablo Olavides did not long continue after his disgrace. Slight as the funds were, which were set apart for its maintenance, they were not exactly paid. The zeal of the parties diminished, and the works were interrupted. The managers as well were too hasty in imposing taxes on the colonists, with intention of proving to the court, that there was a prospect of the establishment reimbursing in a few years the expences of its formation. So many motives of discouragement caused agriculture to languish, and many families left the colony. Nevertheless in 1785 this little capital and its dependent hamlets contained five thousand and forty-four persons. The German families, which at first were numerous, have partly disappeared, and those who remain have become blended with the natives. For more than ten years there have been no priests who speak their language. But lately this interesting colony, an affecting specimen of the wonders of which a government is capable that is sincerely desirous of doing good, continues to justify its cares and hopes. In order to appreciate duly the value of this creation, the spot should have been previously seen, when destitute of inhabitants and waste. But there, as is every where the case, intrigue and envy have rendered in measure abortive the fruits of genius and beneficence.

Guarroman, the first stage from La Carolina, is a town built at the same epoch, whose inhabitants continue to prosper. You leave the Sierra Morena at Baylen, an ancient town, whose district can boast one of the finest breed of horses in all Andalusia.

At about a league from Baylen I remarked to the left a large *venta* M. Olavide had ordered to be begun, but since his disgrace it has been neglected, as if it had been struck by the same anathema as its founder.

You afterwards pass the *Rumblar*, over a stone bridge; a league farther on it falls into the Guadalquivir. From *La Casa del Rey*, a solitary inn in the middle of the woods, you first perceive the Guadalquivir, and reach it at a little distance from Anduxar. Jaen, the bishop of which has been the grand inquisitor for many years, and which is the capital of one of the four kingdoms of Andalusia, is six leagues from Anduxar. Many Roman inscriptions are seen here, which attest its antiquity. When rain is not wanting, the country between these two towns is exceedingly fertile.

Anduxar is one of the richest and most ancient towns in Spain, but its unhealthy position exposes its inhabitants to maladies, for which in the spontaneous and numerous variegated productions of the vegetable kingdom prostrate before them, they might readily find a remedy. Not less rich below its surface than above; the entrails of Anduxa are replete with veins of metal, minerals, valuable marble, rock crystal, &c. The environs of the town are agreeable, and foretell the neighbourhood of a river. The Guadalquivir flows at some distance from its walls. From this part, for a long time, has existed a project for rendering it navigable; but previously it will be requisite to destroy three mills, which bar its course from side to side.

A stage of three long leagues and a half brings you to *Aldea del Rio*, a large village upon an eminence, on the bank of the Guadalquivir.

Four leagues farther you arrive at *El Carpio*, a town of one thousand five hundred inhabitants, on the left bank of Guadalquivir; before you arrive there, you discern from the road the pretty town of *Bujalança*, situated in the midst of a vast plain, productive of wine, grain, and oil.

From this place to *Cordova* is five long leagues, one half of which is across a country entirely naked of trees, but not barren. At about half-way you cross the Guadalquivir at *Las Ventas de Alcolea*, over a bridge, which is one of the finest structures on the new road. Thence to Cordova the Guadalquivir flows on the left, and on the right the back of the Sierra Morena is distinguished. This long chain of woody mountains, of which you do not lose sight from your first entrance into Andalusia, compensates for the perfect nudity of the country you pass through. One is notwithstanding in the center of that Bœtica so much celebrated by the ancients, and of which the magic pen of Fenelon has made a country of enchantment, the abode of happiness and plenty. Such in fact might modern Bœtica become; at present maugre the finest climate in the world, and its most valuable and numerous productions, it but excites regret.

As you approach Cordova from Madrid, it possesses nothing striking; but as you proceed to it from Cadiz, it forms a semicircular amphitheatre on a gentle slope along the Guadalquivir.

The native place of the two Senecas, and Lucan, of Averrhoes, and several learned Arabs, and of that great captain Gonzalve de Cordova, it now contains nothing remarkable except its cathedral, one of the most curious monuments in Europe. Formerly it was a mosque begun by the Moorish King Abdarame, who, desirous of making it the principal temple of the Mahometans, next to that of Mecca, adorned it with most rare magnificence. Lengthways it has twenty-nine naves, and in breadth nineteen, upheld by more than a thousand columns, if you include the hundred, which from the interior support the cupola. The eye is more surprized than delighted at the sight of a forest of columns, which perhaps cannot be equalled throughout the world. They are all either of marble of different colours, or of jasper, but somewhat tarnished by time. The whole building, which on the outside presents to the eye nothing but an unshapen massive edifice,

edifice, is six hundred and twenty feet in length, by four hundred and forty in breadth. Lengthways in one part, it fronts a large court, below which is an ample vaulted cistern. This court has a dismal appearance, it is planted and particularly with orange trees, whose ancient and tufted foliage serves as an asylum to a number of birds, and shades several fountains, which diffuse a perpetual cool.

After the conquest of Cordova in 1236, St. Ferdinand transformed this mosque into a cathedral, which preserved its ancient form up to the time of Charles V. In his time, and since, it has experienced many changes, and some enlargement. On two sides of one of its sixteen gates, are placed two millitary columns, which were dug up in the cathedral itself in 1532.

Besides this edifice and a collegiate church, Cordova has 15 churches, 40 convents, and a number of religious establishments. Need we go farther to look for the origin of its destitute state, and its want of population? In so fine a climate, in midst of so many sources of prosperity, it contains no more than 35,000 inhabitants. Formerly celebrated for its manufactories of silks, fine cloths, &c., it has now no other industrious occupations, but a few manufactories of ribbons, galloons, hats, and baize. Its vicinity is the most productive in grain and olive trees of all the district, but one of the most naked in Spain. The traveller, however, ought not to leave Cordova without visiting its breed of horses, the finest and best attended to of any in Andalusia. The stables pertaining to the establishment, which belong to the King, contained, in 1792, 612 horses of all ages, among which 21 stallions.

The Kingdom of Cordova adjoins that of Grenada. In going from one capital to the other you cross a great portion of the grounds belonging to Cordova. The most remarkable places on the way are *Fernan-nunez*, from which one of the late ambassadors to France took his name, and in which he founded some useful establishments; *Montilla*, whose territory produces an excellent but very dry *vin de liqueur*, little known out of Spain, but highly esteemed by connoisseurs; *Bacna*, a town of a thousand houses; *Alcala la Real*, situated on hill, and containing eight or nine thousand inhabitants; and lastly *Pinos de la Puente* at the entrance of the superb plain of Grenada.

I did not see it, and shall ever regret that I did not see this country, so well worthy the curiosity of travellers, in which nature is at once grand and pleasing; in which the most picturesque scenery is found; high mountains whose summits are eternally covered with snow, rich valleys whose freshness is proof against the most scorching heat, torrents of limpid water, which plunge with dashing noise from the heights of precipices, and flow along the meadows which they fertilize, but seldom sweep with floods; this happy country, which, under the combined influence of a burning sun and natural irrigation, produces the most delicious fruits of every climate; plants which seem to belong to the most opposite zones, the hemp of the North even growing beneath the shade of the olive and the mulberry. I did not see that ancient city, which preserves entire the monuments of the magnificence of the Arabs; where every thing recalls to memory that active and industrious people, whose expulsion is one of the principal causes of the decline of the arts in Spain. But this picture, which I have only sketched, has been painted in an exact and engaging manner by one of my friends, now no more (*Peyron*), whose description of the kingdom of Grenada is one of the most interesting parts of his *Essays on Spain*. But, if the reader be desirous of appreciating as an architect the famous cathedral of Cordova, (perhaps too much magnified,) and take a view of that magnificent palace of the Moorish Kings of Grenada, known by the name of the *Alhambra*, he may refer to the plans of those two monuments engraved by direction of the court of Spain in 1780, a copy of which is in the national library of France.

Shall we confine ourselves to this first specimen of the curiosities of Spain? This kingdom produces them of every description: traces of the sojourn of the Carthaginians still perceptible, master-pieces of Gothic architecture, Roman antiquities, monuments of Moorish magnificence, scarcely injured by time, picturesque spots, in the bosom of rocks fantastically grouped. On the summit of hoary mountains, in the maze of vallies, on the banks of the torrents of the kingdom of Grenada, on the coasts of the ocean, and the Mediterranean; in the gardens and neighbourhood of St. Ildefonso, within the residence, about the gloomy palace of the Escorial, in the cheerful basin of Aranjuez, nay in a thousand places of Spain, the pencil of the artist is invited. We have *picturesque travels in Greece, Italy, and Sicily*. These give room for a desire on the part of the lovers of the arts, and the admirers of antiquity, for still another of this description. Charles IV. might render his reign illustrious in satisfying this common wish of all enlightened Europe. At this price he would have nothing to envy in the monarch who has left him such a great example in reclaiming from the bowels of the earth, and restoring to the living, the ruins of *Herculeum*.

Let us turn from this digression, brought on by the kingdom of Grenada, and resume the road to Cadiz.

From Cordova to *Ecija*, are ten leagues of road, in great want of repairs which it has lately undergone. The country itself has been peopled within these five-and-twenty years by new colonists, whose dwellings are dispersed along the road.

After changing horses at the new and solitary *Vinta de Mango Negro*, you arrive at Carlotta, a pretty village founded with the same view, and nearly at the same time, as that of Carolina. These are the principal places of the new colonies of Andalusia. The same intendant presides over both colonies. Carlotta, the capital of the second colony, had no more than sixty inhabitants in 1791; but in its neighbourhood were six hundred.

Luisiana, another colony beyond *Ecija*, had then no more than two hundred and forty. And lastly, a little further *Fuente Palmera*, another village belonging to these new establishments, counted within its district three hundred and fifty houses pertaining to colonists.

It is a spectacle which philosophy delights in contemplating, that of these colonies created by intelligence and humanity. One is yet surprised at their slow progression. Is it owing to any radical vice, to the want of that firm and resolute disposition, without which nothing is well done? Or is it to be imputed to an innate repugnance among Spaniards to expatriate themselves, or change their abode? Whence is it that so few colonists are drawn by the hope of ameliorating their fate from the better peopled, but more wretched parts of Spain, nay even from foreign countries, where a territory so fertile invites them to ease, as that particularly of the neighbourhood of *Ecija*? It is said that the produce of the land is forty for one, and that the garden grounds, which in great number border the banks of the Xenil, yield three and four crops in a year. Do the *Sciotto* the *Kentucky*, which must be sought beyond the main, present more powerful attractions? Yes, for there man enjoys both civil and religious liberty; these are yet wanting in Spain, which is all that it requires to become both prosperous and happy.

Ecija, a tolerably large town, and one of the most pleasant in Andalusia, is situated between Carlotta and *Luisiana*. Many of its houses, and some of its churches are painted on the outside, in a most ridiculous style. It has six thousand houses. Fragments of marble columns, trunks of statues, stones covered with inscriptions, attest its ancient splendour. Its situation between two hills on the western side of the Xenil, which

flows from Grenada through an ample plain, exposes it to intense heats, and frequent inundations. This town and its neighbourhood possess all the elements of prosperity. Plots of olive trees, luxurious fields, vineyards, and extensive pastures, produce its inhabitants riches in abundance: but they are destitute of those manufactories for which they were formerly celebrated. On entering the town you may behold, but cannot admire, the venerated image of St. Paul, the patron of the town, and at the opposite gate you see the statues of Charles III. the King, the Queen, and the infant Don Louis.

From Ecija you may perceive *Estepa* at five leagues distant on a hill, from the top of which you have a commanding view, over a vast, and very fertile country, covered with olive trees.

Three leagues from Ecija, you find *Luisiana*, a new colony, the houses of which some years ago began to go to decay. This afflicting spectacle presents itself again about a league farther, at a spot where these colonies of the Sierra Morena terminate. They begin on the other side of the mountains at La Conception de *Almuradiel*, and comprize in all a space of forty leagues.

The road to connect them, an object long desired, is at length nearly completed. In order to render it passable in all seasons, it has been found necessary to construct over rivers, rivulets, and marshy places, rendered impracticable in rainy weather, nearly four hundred bridges, as well large as small.

On leaving *Luisiana*, on a very bleak hill, you discern some of the houses of the town of *Carmona*, which commands vast plains covered with olive trees, and extremely fertile, especially in wheat and that of the most superior quality. It is a cheerful animated town. Good taste, however, is offended at its principal belfry, a modern bauble badly modelled after the spire of Seville, and loaded with whimsical ornaments of different colours.

The gate of *Carmona* is a monument of the solidity of Roman works. It appears to be of the time of Trajan, and in some places has been ridiculously patched by modern hands.

From *Carmona* to Seville, is six leagues, which you travel over between vineyards, olive grounds, and robust aloes, which serve at the same time for hedges and ornament to the fields. Will it be credited? This lovely country is almost wholly uninhabited.

The great road from Madrid to Cadiz does not pass as it used to do through Seville, but through the borough of *Alcala*, two leagues higher up on the banks of the Guadalquivir. Who would not diverge from the road to view this famous town, the second in the kingdom, that of which the Andalusians, who are the Spanish Gascons, have long been used to say,

Quien no ha visto Sevilla
No ha visto maravilla *.

The way about is not bad, but the Sevillians have come to a resolution to join their town to the high road by a superb causeway.

* He who has not seen Seville, has yet a wonder to behold.

CHAP. V.—*Seville.—Xerès.—Arcos.—Approaches towards Cadiz.*

THE situation of Seville is admirable, its climate delicious, its environs fertile. But what little advantage has been reaped from so many blessings! Or rather how different is its present to the former state of this town! The historians of the day assure that when taken by St. Ferdinand 400 thousand Moors marched out of its gates, exclusive of those who perished during the siege, and such as chose to remain. If the complaint addressed by the manufacturers to government in 1700, be credited, Seville formerly employed 16,000 looms for silks, and in the different processes for making that article not less than 130,000 persons. At present they have 2318 looms; and no more than from 18 to 19 thousand inhabited houses.

Its cathedral, famous all over Spain, contains a number of statues, many of which possess merit, tombs, more or less decorated, and vast chapels, overloaded with ornaments. Among those of the baptismal fonts, two paintings richly deserve notice; they are by that charming painter born at Seville, and which contains his principal productions, productions which were long wanted for the collection of the Kings of France, and which at length make a part of the national museum, they are by Murillo. Nine other paintings, by this artist, are seen in the capitulary hall, in which all other ornament might well be spared, and two in the vestry. In the chapel of Kings, among other tombs that of St. Ferdinand is noticed, covered with inscriptions in Hebrew, Arabic, Latin, and Spanish; that of Alphonso X., surnamed the wise, or the astronomer, &c. But the tombs of none of the monarchs make so profound an impression, or so much awakens the mind to the memory of ancient days, as that of Christopher Colon, placed before the choir with the following inscription, remarkable for its brevity:

A Castilla y Arragon,
Otro mundo dio Colon.

His son Don Ferdinand who, but for his fame being eclipsed by that of his father, might pass for a great man, has his tomb in one of the chapels; but his epitaph is not so beautiful, it is longer, not equally simple.

The spire of this cathedral, known by the name of the *Giralda*, is one of the fine monuments of Spain. You ascend it by a spiral gallery without steps. It is 250 feet high, and has on its top a statue representing Faith; above one of the five naves of the church is the library, which contains 20,000 volumes. This is not a collection merely for ostentation at Seville. Next to the capital, this is the town which contains the greatest number of enlightened men. Its patriotic society may cite more than one member distinguished for learning and patriotism. A taste for the fine arts in particular is much cultivated at Seville; its inhabitants pride themselves on having several masters of the Spanish school, for countrymen, such as Rocas, Vargas, Zurburan, and especially the incomparable Murillo, whose talents cannot be properly valued except by those who have seen the numerous master-pieces which he has left behind him in Spain. The hospital of charity contains ten, which excite the highest admiration in connoisseurs. In one of the cloisters of the convent of St. Francis, are eleven; and lastly, at that of the capuchins, one is delighted with several paintings by this great master, particularly with a Christ, who detaches himself from the Cross, with the most moving expression of kindness, to embrace St. Francis.

Besides

Besides these master-pieces of painting, and others of the Spanish school, many remarkable buildings deserve notice at Seville.

At the head of these stands the exchange, or *Loriga*, a distinct building, each front of which is 200 feet long. It has lately been repaired and ornamented, and is to be the repository of all old papers relative to Spanish America; archives of valorous deeds, of misfortunes, and crimes, in which history and philosophy will long have treasures to find.

The Alcazar is a magnificent edifice, begun and for a long time inhabited by the Moorish Kings; it was enlarged by the King Don Pedro, and afterwards by Charles V. who added some tasty embellishments. Many Spanish Kings have resided in it, and Philip V., who passed some time there with all his court, felt inclined to fix there his abode; a project which, separate from political considerations, would probably before this have taken place, to the great satisfaction, if those of Madrid be excepted, of all the inhabitants of Spain.

In this Alcazar are collected several fragments of ancient statues, discovered at some distance from Seville. This precious harvest is principally due to the attention of Don Francisco Bruno, an enlightened antiquarian, and a zealous and indefatigable citizen, who is an honour to his country.

Another building, which shews a deal of taste, is the tobacco and snuff manufactory, compleated in 1757; a prodigious establishment, as well for the size of the edifice as the number of hands it employs. There the tobacco in leaves is received as it comes from the Havannah, where but a small quantity is manufactured; the details of the manufacture of this article are not uninteresting. In making of snuff, the leaves are first reduced to powder, a kind of ochre is then prepared (*almazarron*) with which it is mixt to give it its colour. The snuff thus mixed is inclosed in little tin boxes, registered, ticketed, put into bales, and sent over all parts of the peninsula. A separate apartment is destined to the forming the little rolls, called *Cigars*, the consumption of which is so considerable in Spain. It would be difficult to find, in so small a space, either greater activity or more variety of occupations.

The foundry of copper cannon, which, with that of Barcelona, supplies all the Spanish arsenals in Europe, is also a building remarkable for its extent and the excellent manner in which it is planned. The method of M. Maritz is still followed there, with some trifling variations. But there is great room for a saving in the expences of this establishment. Each quintal of refined copper, some years ago, cost the King about fifty reals (ten shillings and three-pence). A little before then, a Frenchman proposed to the King a method which would have made a saving of twenty-two reals a quintal. The proposition was rejected. The Frenchman persisted, and the proofs at which the Spaniards vouchsafed to be present, that they might not too openly betray their ill will, shewed the excellence of the copper refined and cast according to his method: but intrigue, which was not idle on this occasion, found means to prevent the experiment from being any further prosecuted; and I understand that the expensive establishment, formed at Port Rial opposite to Cadiz, is limited to furnishing copper bolts for shipping.

The mint is one of the most ancient buildings in Seville. It formerly was greatly employed. Writers of the day affirm that the coinage in gold and silver together was to the amount of seven hundred marks daily. For a long time no other money was coined there, except for the use of individuals. It is only since 1718 that coin has been struck for the King's account.

To these are to be added the seminary of St. Telme, which is a school for pilotage, and the golden tower, (Del Oro,) an old building attributed to the Romans. Its object was, without doubt, to facilitate navigation. Here it was that a chain was extended by the Moors across the Guadalquivir to the suburb of Triana, on the opposite bank. This river has its source on one side of the chain of mountains called Sierra de Segura, and takes its course towards the ocean; while the Segura, which rises on the opposite side, runs towards the Mediterranean; down this stream is floated the ship-timber requisite for the supply of Murcia, Orihucla, and Carthagena, with different other descriptions of wood which abound in the mountains.

It was to the Guadalquivir that Seville owed its ancient grandeur. At the period of its greatest lustre the largest vessels came up to the quays of Seville, and those of inferior burthen proceeded as high up as Cordova. At present ships of great draught come up no higher than *Bonauza*, a village fifteen leagues from Seville, whence the cargoes are brought up in lighters; none above eighty tons burthen being able to ascend so high as to the city.

Some principal buildings adorn that part of the banks of the Guadalquivir, which fronts the suburb of Triana. There it was that Lerena, while intendant of Andalusia, began a plantation which has since become a delightful promenade; and which, when its shades shall become somewhat thicker, will leave no room for the inhabitants to envy the capital in this respect. Already was the city indebted to M. Olavides for a part of its wharfs, and several useful establishments, when he was separated from them. The anathemas of the Inquisition have prevented his name from being publicly mentioned, but have not been able to prevent a general affection for his memory.

The interior of the city possesses a fine walk adorned with fountains, and formed by five rows of trees, whose roots are watered by little canals.

The neighbourhood of Seville, in common with that of most of the towns of Andalusia, is well cultivated. As you leave the bare and unpeopled plains of Castile and Murcia, you see with pleasure its orchards and its country-houses.

But what above all render the neighbourhood of Seville deserving the attention of the traveller, are the ruins of Italica, an ancient Roman town, the birth-place of Silius Italicus. It was situated north of Seville, a league and a half distant, along the left bank of the Guadalquivir. The monuments of it which yet remain are preserved from the injuries of time and ignorance by the care of some monks, whose convent is in their vicinity. M. Brouffonet, having lately travelled through Spain, has since published an interesting account of Italica and its ruins.

The modern road from Carmena to Cadiz presents nothing remarkable before you reach Xeres, unless it be the town of *Utrera*, which has two thousand houses.

As you go to Xeres you have a very favourable view of the town. A little energy would make it one of the most interesting that Spain can boast. A more delightful site could not have been chosen; and its streets are in general both wide and straight. From the summit of the Alcazar, which is greatly frequented, you have the most agreeable prospects imaginable over the adjacent country.

The territory requires nothing more than a greater attention to its culture to make it one of the most fertile countries in Europe. Produce of every description succeeds there; vineyards, which form its principal reliance, olive-grounds, pastures, fir, oak, hemp, &c. Its vineyards, notwithstanding their imperfect state, yield, *communibus annis*, 360,000 arrobes of wine, (10,000 pipes,) of which about 200,000 are exported, principally by the English and French. The cultivation of wheat might be doubled. Neglected as it is at present, it subjects the country to frequent dearth.

Olive-

Olive-grounds are in a state of still inferior improvement ; seldom does the annual crop exceed 32,000 arrobes of oil (110,000 gallons). Silk-worms would flourish here, and give work to thousands of women who are destitute of employment.

Its breed of horses has greatly declined, as well as every other of its former sources of wealth ; its foals, which are yet the best in Andalusia, at three years old are destined for the cavalry ; but some years ago there were no more than 600 mares in all its extensive territory.

Some coarse cloths, made from the 3000 arrobes of wool which it produces, some manufactories of linen, and about a score of looms for making ribbons ; these are the whole of the occupations it possesses for the industry of its inhabitants ; and even for these they are indebted to the cares of a patriotic school, and some beneficent individuals.

Half a league from Xeres is one of the most famous Chartreuses in Spain, for its wealth and its agreeable position, within sight of Cadiz. Such as admire the fine arts resort hither to view the best works of Turbaran, and some by the inexhaustible Luce Giordano. The silent inhabitants of this delightful asylum almost extort forgiveness of their opulence, and pious idleness, by their tender solicitude for the two most interesting periods of life. They are beginning to educate thirty poor children belonging to the neighbouring town, and a dozen of old men incapable of labour pass with them tranquilly the ebb of life.

Two great leagues thence the town of Arcos is situated. To reach it you ford through the Guadalete, the river of oblivion of the ancients. Arcos is a town of two thousand five hundred houses, situated in the centre of the most fertile country, surrounded by orange-trees ; it is built on an inaccessible rock, whence are perceived the mountains of Ronda, Medina, Sidonia, and Gibraltar. The Guadalete partly encompasses Arcos, and rolls its noisy course through the bottom of a deep and crooked valley, where it seems to force for itself the channel poets feign.

From the Chartreuse of Xeres to the modern town called *Ile de Leon*, you travel four leagues without seeing even a cottage. After fording the Guadalete, you enter the vast plain wherein the battle was fought which put an end to the empire of the Goths, and placed Spain for some centuries under dependance on the Arabs, and at the same reach the confines of the ancient Boetica. This combination of objects, which recall the ingenious invention of fable, and great achievements of history, the bounty of nature, and the ingratitude of those who so ill repay her gifts, give stead to deep reflection. One is induced to compare the boundless field of imagination with the narrow limits that idleness prescribes to industry ; seducing chimeras to lamentable reality ; one admires the illustrious authors of these wonders, and pities the modern actors on so fine a stage who play so ill their parts. But we approach now the theatre of commerce, Cadiz lays before us.

The first prospect of its bay is from the top of a hill midway between Xeres and Port St. Mary. Thence you view the whole of the bay, as if upon a map. You distinguish clearly the two points which form its mouth, the fort of St. Sebastian on the one side, and the town of Rota on the other, Cadiz laying in front. You see the narrow tongue of low land which divides that town from the *Ile de Leon* ; the irregular figure of the bay as it inclines to the Carrack, Port Real, and Port St. Mary.

Thus must chains of mountains, towns, and the sinuosities of rivers, have appeared to those hardy rivals of the inhabitants of the air ; those aerial travellers, whose brilliant intrepidity has of late years excited our wonder.

From Xeres you have the choice of two roads, that which goes round the bay by land, and that which proceeds straight to Cadiz crossing the bay. If you decide in favour of the first, after passing the Chartreuse, you travel through woods of pine, the proprietors of which by their early felling, prevent them growing to that maturity which might fit them for the navy. Beyond these woods you discover the pretty towns of Port St. Mary and Port Real. You leave them on the right, as well as the Guadalete, which a little lower divides into two branches. One empties itself in front of the bar of Port St. Mary; the other directs its course towards Puerto Real, and takes the name of St. Pedro. You afterwards perceive the superb modern road which leads to Cadiz; this little river is crossed over the bridge of Suazo, the opposite side of which is the Isle of Leon, thus called on account of the portion of land which composes it, being surrounded by a very ancient navigable canal, which is from 22 to 24 feet deep at high water. In another place I shall make further mention of this road and of the Isle of Leon.

If in going to Cadiz you determine on crossing the bay, you take freight in one of the large boats, whose owners pester you with their offers of service on your reaching Port St. Mary, and in less than an hour are transported to the quays at Cadiz.

Port St. Mary is situated nigh the mouth of the Guadalete, which by driving its sands into the bay, forms a bar not passed without some danger, particularly in winter. The boatmen, whose interest it is to keep the passengers alive to fear, never fail exaggerating the danger; and in the moment when it is most imminent, recite a prayer, which they afterwards beg payment for; but the most timid passengers, nay even the greatest devotees, have more confidence in the skill of their conductors than in the efficiency of their prayers.

CHAP. VI.—*Description of Cadiz, its new establishments, its port.—Of the Carrack.—Of the Isle of Leon, the magazines, the dock-yards.*

WHEN I arrived at Cadiz, in 1785, O'Reilly was governor, or rather reigned there; and it must be allowed that under his reign this town experienced changes for the better of every description. Cadiz owes to him its embellishment, augmentation, and cleanliness; I cannot add its security. At that time murders were very frequent in the city, and since then are not less common.

Under his active management the old houses were pulled down, to give place to new ones regularly built; the streets were paved, made straighter, and constantly kept clean, and the waste ground was covered with new houses. He may be reproached even with excess of œconomy with respect to this ground. In several triangular spaces houses were built which, without convenience for those who inhabited them, seemed to have no object but that of incommoding their neighbours. He even endeavoured to extend the confines of the city by gaining space from the sea. The ground upon which the custom-house stands, and that adjacent, was formerly covered by the watery element, but this was anterior to his administration. He meditated another project of the same kind.

He wished to take possession of the ground of the Alameda, a walk by the sea side near the bay, the trees of which bear the visible marks of its neighbourhood. His intention was to build there, and to lengthen the space, by raising to a level with it that part of the shore which runs towards the inner part of the city; and on the outer bank of the new enclosure he intended to plant a new alley of trees. But to effect this kind of miracle, funds were necessary, and stones and rubbish sufficient to fill up the extensive space he projected to gain from the sea.

He

He bestowed much attention on the embellishment of the neighbourhood of the gate on the land side, which was formerly covered with briars, and served as an asylum for robbers. Under the administration of one of his predecessors, gardens were laid out, and several houses built there. At the time of the dispute relative to the Falkland Islands, the pusillanimous governor fancied the place in danger, and the enemy close to the gates, entrenched behind these weak experiments of industry, and in consequence destroyed the houses.

Under the administration of the Count de Xerena, predecessor to Count O'Reilly, it was intended to rebuild them; but they did not acquire an agreeable form till the latter became governor. He extended the cultivation of the isthmus from the side of the great road which leads from Cadiz to the island of Leon, and created a garden (notwithstanding the sand) as agreeable in appearance as a soil of such nature would allow, which he inclosed with an open railing. His example was imitated by the neighbours; so that for a quarter of a league from the land gate the road is bordered with similar fences, which, by their uniformity, seem to belong to the same proprietor. The neighbourhood of the sea, the heat of the climate, and the nature of the soil, the sand of which it is not possible to cover with good earth above a certain height, are visible in the produce of this cultivation; but it is not the less delightful to see verdure, and gather flowers and fruits in a soil which so many circumstances seem to condemn to sterility. While walking in the garden of the assessor Mora, and that of the governor, which joins it, and viewing all the rich productions of Andalusia, the vines, mulberry and olive trees that flourish there, we forget the nature of the ground on which we tread, and the element by which it is almost surrounded. In time, these environs of the land gate were to form a kind of suburb; and a church was already built, a quarter of a league from the city, for those who resided in that neighbourhood.

But these wonders very shortly survived the administration of their author. The sand has resumed its empire over the disputed space, and the traces of the garden of O'Reilly, and that of the assessor Mora, are now scarcely discernible.

But nothing does more honour to the zeal, understanding, and humanity of Count O'Reilly than the Hospitium, which owes to him, if not its first establishment, at least the admirable form given it in the course of the year 1785. Within the same edifice succour was afforded to every class of subjects who had claim either to the care or inspection of government; to the aged of both sexes, to incurables, vagabonds, prostitutes, the insane, and children of both sexes whom their parents were incapable of maintaining. Each class was placed in spacious and well aired apartments. Every person was furnished with food and employment according to his age and situation. Poor families found an asylum there, nor did the number of them alarm the beneficence of government. However, to prevent abuses, the commissary of each quarter was obliged to present weekly to the governor, an account of all the persons of both sexes entitled to charitable assistance. The governor examined the statement, and wrote his directions in the margin. In the seventeen divisions of which Cadiz was composed, there were fourteen in which not one person found a difficulty in gaining a livelihood, or was deprived of the succour necessary to render life supportable; and before the disgrace of O'Reilly, these benefits were extended to the whole city.

The good order constantly maintained in this institution was the fruit of his continual inspection. He was well seconded by several citizens of distinction, who, some from sentiments of humanity, and others to make their court to him, divided among themselves the direction of the different apartments of the hospital. Their presence seemed to inspire respect and confidence. They restored serenity, and brought back hope and

joy. Prostitutes and the insane were the only persons deprived of liberty ; individuals of every other class went out in companies at certain hours. None but the aged and infirm were exempt from labour. Such as were capable of working were mostly employed in carding, spinning, and weaving the cotton imported from the colonies of America. In 1785, there were more looms, &c. than hands to employ them. The excess of stuffs manufactured above what were sufficient for the consumption of its inhabitants, was sold to increase the funds of the establishment. To those which existed before M. O'Reilly became governor, he added the produce of certain pieces of ground belonging to the city. In addition to these the charity of the citizens was evidenced by considerable contributions. Since the retirement of O'Reilly, this admirable establishment has somewhat degenerated, and in succeeding years beggars again made their appearance.

It would have been difficult to find successors equally active with him, or who should have taken so much delight in the prosperity of his institution. O'Reilly had a peculiar talent of making every circumstance and every passion subservient to his purpose. His despotic character was dreaded. The mere expression of a wish was to those around him equivalent to a command ; while by his insinuating manners he engaged the inhabitants of Cadiz, who were of all people those the least devoted to him, to contribute their time, their carriages, and their horses, to objects which were nominally for the public good, but which were frequently no other than the offspring of caprice. Cadiz owes also to him the repair of the road which leads to Leon. A Frenchman was charged with the work, (Du Bournial,) an engineer for bridges and highways, whom he had sent for from France to employ in his military school of *Port St. Mary*. This road, which is on leaving Cadiz a quarter of a league in breadth, narrows so considerably at the distance of a league from the town, that the sea at high water bathes both sides of the causeway on which you travel, which has the appearance of a mole protruded by the bold hand of man on the abyss of the ocean. Du Bournial raised this road, rendered it more solid, and shorter, and acquired a title to the gratitude of the inhabitants of Cadiz.

O'Reilly was desirous of employing him upon a work of more considerable magnitude, or at least of greater parade. It is well known that Cadiz is destitute of good water. As a bad substitute they use an unwholesome brackish water, which they draw from wells that are supplied by the rain, which is conducted into them from the internal court of each house. The remainder of the water which they consume is collected in *azoteas*. These are flat roofs, in the form of a terrace, with which almost every house in Cadiz is furnished, I may say adorned, and serving as well for a promenade and observatory for the inhabitants ; ever anxious and upon the look out for those objects the darling of their hopes.

From these *azoteas* the rain-water runs through pipes into the *arrive* or cistern, which occupies the interior part of the house, not covered over, and thence into a well in the corner of the court. For the sameness of the necessities of the inhabitants (the result of their position) has occasioned in this city a perfect uniformity in the figure and distribution of almost all the buildings.

These then are the only resources of the inhabitants for obtaining the water necessary for their domestic wants. As for that which they drink, they are obliged to fetch it from the springs of Port St. Mary, which however in dry weather are not competent to the demand upon them, notwithstanding 96,000 piastres (16,000*l.*) be annually paid for the precarious contribution they afford ; a real inconvenience for a town so populous, a port which is the place of departure of so many merchant vessels and ships of

war.

war. O'Reilly, in order to remedy this inconvenience, projected the plan of conducting a stream of fresh water from the heights of Medina Sidonia, a distance of eleven leagues. Already had he calculated with the engineer du Bournial that the completion of this canal would not cost more than two millions of piastres (333,000*l.*); and as early as the month of August 1785 more than half the sum was subscribed. Du Bournial had surveyed and taken the level of the whole extent, and sketched out the whole of the plan. He had discovered the traces of an ancient canal cut by the Romans for the same purpose, the bed of which was to serve in great measure for the new canal. Many detractors opposed this brilliant enterprize; but in spite of them it was begun: it did not, however, proceed more than half a league. The disgrace of O'Reilly put a stop to the project, and the inhabitants of Cadiz continue to fetch their water from Port St. Mary.

Another project of equal magnitude, but of far superior utility, has latterly been completely executed. I speak of the work designed to shelter from the rage of the sea that part of the city of Cadiz which lays towards the south between Fort St. Sebastian and *Matadero*. It is doubtless owing to its ravage that a great part of the island upon which the city is built has been worn away. In the seventeenth century it destroyed a number of buildings; and at that time some such plan was contemplated as latterly has been put in execution. At the beginning of the present century a kind of rampart in shape of a dam was opposed to the sea, but it had been so much undermined, that Cadiz at high tides, and in stormy weather, was liable to imminent danger. It became necessary every year to repair the injuries committed by the waves; and the engineers employed on the repairs were no ways interested in drying up the sources of such a lucrative occupation. Under the reign of Charles III. the government at length thought seriously of securing Cadiz from the danger with which it was menaced. From among a many plans tendered them in 1786, they adopted that of Don Thomas Manoz, an officer of distinction, and a man of merit, who deserves to be ranked among men of genius, and the benefactors of his country. His plan consisted in forming along the wall a sort of beach, solid, and in *talus*, against which the waves might spend their first strength, and afterwards flow calmly on to the foot of the city. In the first place, enormous pillars have been built in advance to divide the waves, which afterwards strike upon the artificial beach behind them. It is founded on large flint stones, which it required great pains to fix with any solidity in the ground, and which are joined together by a kind of cement that hardens in water. This work was begun in 1788, and was finished in three years, notwithstanding the work could only be carried on at low water from the beginning of May to the end of September. The happy results of the expedient are daily witnessed. The waves no longer reach the top of the wall, or approach it but in a gentle manner; whereas before the shock of them was so violent, that the neighbouring buildings not only felt it, but were inundated by them, the spray flying over the top of the cathedral. The work is said to have cost fourteen millions of piastres (2,333,000*l.*); but it was impossible for the Spanish government to have laid out money to greater advantage, or in a more honourable manner. The sea opposite to the shore thus threatened has retired in proportion to its efforts on the south side, so that certain parts of the beach are dry where formerly vessels used to swim*.

The bay of Cadiz is so extensive that there are distinct stations for different ships, according to the places for which they are destined. In front, but at a certain distance from the town, those vessels are moored which arrive from European ports. More to-

* It is with pain we understand that the success of the works at the port of Cadiz is not so lasting as could be desired.

wards the east, in the canal of Trocadero, the vessels employed in the South American trade are moored and unrigged. At the bottom of the canal is situated the pretty borough of Port Real, and on its banks are the warehouses, arsenals, and dock-yards for merchant vessels. The entrance of *Trocadero* is defended by two forts, one called *Matagorda*, upon the continent; the other, *Fort Louis*, built by *Duguay Trouin*, on a little island visible at low water. The fire from these two forts crosses that of one of the *Puntales* on the opposite shore. You are consequently exposed to the fire of these batteries in sailing from the great bay to that of *Puntales*, at the bottom of which the vessels of the royal navy when disarmed are moored, close to the magazines. The great space these occupy, and which land and sea dispute with each other, is washed on the west by the river *Sancti Petri*, and is known by the name of the *Carrack* (*la Caracca*). The court of Spain rigorously interdicts the admission here of any strangers. The governor replies to any address for seeing it, that it is not allowed without a formal order from the King. However there are means of doing without it. You may go to the isle of Leon, a modern town, begun about the middle of the last century, and which has increased prodigiously in size within so short a space of time. In 1790 there were 40,000 communicants, a tolerably certain base in Spain for calculating the population of a place. Its principal street is full a quarter of a league in length, and has a good appearance, in spite of the bad taste with which its houses are uniformly decorated. The island of Leon, however, resembles but little the other towns of Spain. There reigns in it an air of cleanliness and comfort. It has a well furnished market, and a spacious square, regularly built. The college of marines has been transferred from Cadiz to the isle of Leon, in the interval of the completion of the new building that is in hand for its reception at the new colony of *San Carlos*, adjoining the Carrack, where is to be united in one place all that belongs to a perfect establishment of marines.

The isle of Leon is separated from the Carrack by a basin nine hundred feet long, by six hundred in breadth, whence flow two canals, one proceeding to sea, the other to the Carrack. From this city, across an arm of the sea, to the Carrack is about a quarter of a league. You may gain admittance without much difficulty if in company with some privileged person, and survey the contents of its arsenals. The lodgings of the galley-slaves, and the rope-yard, are worthy of admiration; the building is six hundred yards long, and has as good an appearance as that of Brest. Those who have compared the cordage and cables of the principal dock-yards and magazines in Europe, affirm that in this respect the navy of Spain is not inferior to any, and that its cordage is better made and more durable from this circumstance, that in combing the hemp all the towy part others leave in is taken out, and made use of in caulking; whence results the double advantage of having more solid cordage and better caulking materials for vessels.

Until lately the Spaniards imported their hemp from the north, they will very soon be able to do without the assistance, in this article, of any other nation. The kingdom of Granada has for some years furnished them with the greatest part of the hemp they use; they likewise receive some from Arragon and Navarre.

The warehouses contain a great quantity of sheets of copper; but hitherto they are all brought from Sweden or Trieste. The Spaniards do not yet know how to refine copper well enough to use that from Mexico in bottoming their ships. Their first adoption of this practice was at the beginning of the American war. A few years ago the court established flattening-mills at Ferrol, which it is likely are not yet in full activity. It is a matter of astonishment that an invention of so much utility should not have been sooner adopted in a country possessing a navy, manufactories of every description, and at least the outlines of all the arts. The reason is that in Spain almost every thing, even at
present,

present, proceeds but slowly, that the most beneficial innovations, generally badly patronized, are oftentimes opposed with all the obstinacy of prejudice, with all the bitterness of envy; and that the government itself fees its power limited by the passions of those who usurp and abuse its confidence.

In spite of these obstacles however, modern times display many successful plans resulting from the perseverance of the inventors, and the despotism of necessity. The work of Don Thomas Munoz at Cadiz is a proof of this. The same port exhibits a second. Little more than twenty years ago, vessels of war were neither built here nor refitted, and when it was found necessary to careen a ship, it was used to be affected on pontoons. M. de Valdis, when sub-inspector of the Carrack, recommended the plan of building a dock; and, when raised to the situation of minister of the navy, caused it to be put in execution. The nature of the soil seemed to render the project impracticable. It is a sort of clay which easily gives way, seemingly participating in the mobility of the element which surrounds it, and with which it is saturated. It was in the most elevated part of this ground, that the first basin was begun in the month of August 1785. At that period I saw the forest of piles driven, upon which a bed of stone was to be laid to give the basin a solidity, against which every thing seemed to conspire. The engineers who directed the works scarcely looked for success; their purpose seemed to meet new obstacles daily. Art and perseverance at length triumphed over every difficulty, and in the year 1787, instead of one basin at the Carraque, there were two for the building of vessels of sixty four guns. At the present moment there are three, two of which are in full activity.

We must not forget to observe, that there is a school for pilots at Cadiz, a naval academy, and a very substantial observatory, extremely commodious and well furnished with excellent instruments. It was for a long time under the direction of Don Vicente Tufino, lately dead, who observed the transit of Venus in 1769.

It is farther a difficult matter at present to find a more complete establishment of marines than that at Cadiz.

CHAP. VII.—*Details relative to the commerce of Cadiz.—Treatment of the French at that port.—Privileges enjoyed by foreigners.—New tariff.—Smuggling.*

BUT what above every thing else establishes the importance of Cadiz, that which puts it on a level with the most considerable cities in the world, is the immensity of its commerce. In 1795 it could boast more than one hundred and ten proprietors of ships, and *six hundred and seventy* commercial firms, without including retailers or shopkeepers, or the French, who had been obliged to quit the city in consequence of the war. A further idea of its trade may be gathered from a knowledge of the number of vessels of different burthen which enter at its port. In 1776 this number was nine hundred and forty-nine, comprizing vessels of all nations, of which two hundred and sixty-five were French.

The war which succeeded diminished for a time the extent of our relations with Cadiz; but, on the return of peace, it appeared rather to augment than decrease. Formerly no vessels belonging to our nation entered Cadiz from any port of Europe north of Cadiz. Latterly we have become more familiarized with the northern seas; and many of our ships have been dispatched from that port for Hamburgh and Amsterdam, and been freighted back afterwards for Cadiz.

The relations of this port with the rest of Europe in 1791 were as follows: *one thousand and ten* vessels entered; of which 180 were English; 176 Spanish from America;

162 Spanish from Europe ; 116 French only ; 104 Portuguese ; 90 Americans ; 80 Dutch ; 41 Danish ; 25 Swedish ; 22 Ragusan ; 6 Genoese ; 2 Venetian ; 1 Ham-burgher ; 1 Russian ; 1 Austrian ; and 1 Spanish from Manilla.

The 176 Spanish vessels from the colonies with the vessel from Manilla brought in gold and silver, coined or in bars, and plate to the value of 25,788,175 hard dollars, equal at 4s. 6d. each to 5,800,339l. 7s. 6d.

The trade from Cadiz to Spanish America continued at that period to be very considerable. In the course of that year 1791, 35 vessels sailed thence for the West Indian islands, 20 for Vera Cruz, 16 for Montevideo, 7 for Lima, 8 for Honduras, 5 for Carthagea ; in all 105.

The French ports which trade to Cadiz are *Marseilles, Havre de Grace, Rouen, Morlaix, St. Malo, Bayonne, Bourdeaux, Nantes, and St. Valery*. The gradation in which they are named shews the pre-eminence of the transactions of the different towns with this port. Before the Revolution, which will occasion more than one modification of our relations with commercial Spain, Marseilles exported to Cadiz, *communibus annis*, various merchandize to the amount of 12,000,000, in which silk and gilt works formed the principal articles. Woollen goods were the chief exports from Rouen and Havre de Grace. Morlaix and St. Malo shipped linens, which was also one of the principal articles of the trifling adventures from Nantes. From Bourdeaux and Bayonne little but flour and bacon was expedited ; and from St. Valery cloths of the manufacture of Amiens alone.

The foreign houses most numerous at Cadiz belong to Irish, Flemings, Genoese, and Germans ; of the latter, the chief part are Ham-burghers, who are much favoured by ancient treaties with Spain, and who, of quiet manners but adventurous and persevering, are addicted to all branches of commerce. They made a good use of their profits ; having established among themselves a society for the relief of their necessitous countrymen.

The English and French have the smallest number of establishments at Cadiz of any of the commercial nations, notwithstanding which the extent of their commerce with this city is very considerable. Fifteen years ago there were fifty French firms at Cadiz, divided into five classes, according to the capital they employed or acknowledged. In the number of these there are some of great consequence, for whom Cadiz is as it were another home, but who, far from losing sight of their native home, add doubly to the wealth of their country, by favouring the sale of its productions, and returning afterwards with the result of their speculations : valuable description of colonists, which cannot be bound by too many ties to their country, but which seem of late years to have experienced discouragement, as well from the treatment which individuals have met with, the vestige of which has not altogether been effaced by the peace of 1795, as by the concurrence of the native merchants towards the promotion of their true interests, by effecting for themselves, what, for too long a period, they saw effected with success by foreigners.

Besides wholesale dealers, there were at Cadiz about thirty French shopkeepers, which with the former made up a *nation*, an object of jealousy with the Spaniards, and frequently persecuted by the agents of government. This body possessed its funds, its meetings, and prerogatives, and sometimes assembled in order to treat of the interests of their trade under the auspices of the consul-general of their country.

Cadiz contained about the same number of French milliners ; and at least a hundred artisans of different professions.

The spleen which the court of Madrid experienced on the score of our Revolution was, even at the beginning of it, vented on the heads of all the French established at Cadiz as well as in other parts of Spain. In the first place, in the month of July 1791, all foreigners, without particularly designating the French, were constrained to take an oath of exclusive submission to the sovereign of the country; an oath, the purport of which was evidently to make them abjure their native land. The schedule which enforced this law obliged them *to renounce all privileges which they enjoyed as foreigners, and every relation, all union with, and all dependence upon the country in which they were born; and this under pain of being sent to the galleys, of being absolutely banished the kingdom, or of confiscation of property, according to the quality of the individuals, or the nature of their contravention of the law.* Thus much for foreigners domiciliated in Spain. As for travellers, known under the title of *transeuntes*, they were forbidden to remain at any of the royal residences, or *to exercise in any part of the kingdom any trade or profession whatsoever, without express allowance from court.*

A measure so severe on the part of an European power towards civilized nations is almost unexampled. One would have conjectured that the court of Morocco and its satellites had been transported to Madrid. Notwithstanding this, Charles IV. is just and benevolent; and, whatever be said of him, does not abhor the French. But Charles IV., the most tolerant of despots, had Florida Blanca for his grand vizier.

The publication of the schedule excited a general clamour. Most foreigners, (particularly the English, who were then in favour, or who rather at that time were dreaded; whilst we seemed by no means an object of fear;) most foreigners, I say, easily procured exemptions and favourable hearing; the government acted with rigour only towards the real enemies against which it was issued. However, when put in force, it seemed so much encumbered with difficulties, that modifications took place even in favour of the French. Yet many suffered from it. Some bent before the blast; but the greater part did not pause between the loss of fortune or their country; and France beheld the return of a considerable number of these estimable fugitives. The French who remained in Spain, either from the resolution made of considering them as *transeuntes*, or, from their becoming such in fact, were more than ever subject to the strictest vigilance. Government suffered the violation of treaties to their injury, and possibly encouraged such infractions, practising them itself. Most of the privileges of the French were disputed. In many places, particularly at Cadiz, the meetings of *their nation* were suspended. They were, it is true, permitted afterwards, but with the restriction of their being held in presence of the governor of the place; a restriction which annulled the grant. French merchants were in this precarious situation in Spain when our Revolution made such progress as became alarming to the neighbouring states. The throne was overturned, and the republic proclaimed. The horizon of Europe became more and more darkened, and already the thunder-cloud of war seemed ready to burst over Spain; Count D'Aranda, then chief minister, made some attempts in a dignified, perhaps rugged manner, to avert the storm. His young successor, without professing similar principles, yet inherited his pacific disposition. At that time I thought him sincere, and since then have no reason to doubt his being so. In a few weeks I was satisfied of his sincerity. An engagement to remain neutral was already drawn out, agreed to, and was on the eve of being signed, when that head was severed which could not but be dear to the court of Madrid. All negotiation instantly ceased. I quitted the country without taking leave, but, before my departure, recommended the French whom I left behind, if not to the benevolence, yet to the justice of the Spanish monarch; and received the most satisfactory reply.

I did not apprehend that I should scarcely have crossed the Pyrenees, before my countrymen would experience one of the most violent persecutions that national animosity has ever produced. It is well known that even before the declaration of war, they received orders to leave Spain immediately; not giving them even time to adjust their affairs; that many were not able to bring away their cloaths; that all their property, furniture, and fixtures, and all the merchandize in their warehouses was sequestered; and that for several weeks the ports of Spain were full of Frenchmen, proscribed by orders, dragged from a monarch as just as he is humane.

A council was created under the title of *Junta de Reprisalias*, distinctly charged with all that related to the sequestration of the property of the French exiles, and the indemnities to taken upon it by the King of Spain. In the schedule which established this council it was argued, in order to palliate the strangeness of the proceeding, that the same measure had several times been adopted *in the last century upon similar occasions*. But let us draw the curtain over these transitory injuries of rage and fanaticism. I shall not say that they have been expiated by victory; I shall only observe, that a sincere restoration of concord ought to commit them to oblivion. Now that Spain knows her real enemies, and her necessary friends, she will not restrict her justice to the simple restitution of their invaded properties. Let us hope that, without waiting for the conclusion of the treaty of commerce so often demanded, so long expected, and the promise of which is repeated in our last treaty of alliance, the French will find no longer in her the jealous and malevolent demeanor of a rival, but, on the contrary, that respect which is due to an intimate ally, and be again invested with the peaceable enjoyment of their privileges. Perhaps the reader may be curious to know what are these *privileges*.

They are of long standing, and formal; they were confirmed and extended by the famous family compact, now become a national compact. They have nevertheless been, (let us declare it, void of spleen, if it be possible,) they have nevertheless been scandalously infringed in almost every instance.

The greater part of these privileges are not exclusively enjoyed by the French. They take their date from that period at which the inertia of Spain made it necessary to call in the assistance of the capitals and industry of foreigners, and attach them to its sea-ports by treaties which then were reciprocally advantageous, but which have become otherwise now that her drowsy fit no more continues.

The most ancient of these treaties was that of 1647 with the Hanseatic towns. This served as a model for those since made with the English, Dutch, and French. It grants licence to the merchants of those different nations to establish commercial firms in Spanish ports; and to reside there under the protection of their consuls in some degree independent of the sovereign, to form *a nation*, to have a separate tribunal for the decision of disputes relative to commercial matters, &c.

To these privileges the family compact, concluded at an epoch at which the two monarchs of France and Spain, without having ever seen each other, were animated with the most tender mutual attachment, and at a time that the policy of the moment prescribed the strengthening of those ties, this family compact added to these privileges some peculiar to the French. Among other stipulations, it covenanted not only that Frenchmen and Spaniards should be treated equally with the most favoured nations in the two countries, but also that the subjects of the one king upon the territory of the other should be looked upon as natives, as far as regarded any right of importation or exportation, and enjoy equal facilities in trading, &c.

In practice, these privileges common to most foreigners are often nugatory; but, even before the French Revolution, they were with none more frequently set at naught than

lian with the French, owing to their possessing more than other foreigners that species of industry which is importunate, and that marked success which awakens jealousy; owing to Spain, ever since she has been occupied in the restoration of her manufactures, considering them as formidable rivals; owing to the French possessing an unconquerable disposition, and a singular aptitude to smuggling; and, lastly, owing to the same custom existing between governments as individuals, of reserving their fits of spleen for their best friends, while their politeness and attention are shown to such as are but indifferent to them, or whose interest they are desirous to secure.

Thus, while English ships which, according to treaty, should be searched upon their arrival at the ports of Spain, frequently elude this formality altogether, or are subject to very slight examination, those of the French are minutely visited; nay, oftentimes are subjected to a repetition of search at their own expence, upon the slightest suspicion of any thing contraband on board.

Thus, notwithstanding by the same treaty no search was to take place, except in presence of the consul of our nation, our vessels were often visited unexpectedly, and sometimes without any notice being given.

Thus, although the family compact expresses in formal terms, that the French, in matters of trade, should be treated on a par with Spaniards themselves, this has almost constantly been demanded without success, when our captains of ships have been desirous of bringing loadings of wine and corn coastwise from one port to another in Spain. Certain conventions made posterior to this pact, and designed to explain obscure passages, left room for further litigation. Of this the smuggling of piastres in particular has become a very fruitful source. From an ambiguous passage in the convention of 1774, it was contended that the treatment to be used towards our captains of ships, on board of which piastres were smuggled, should be the same as towards nations found guilty of contraband; that is to say, not only that the piastres became forfeited, with the ship, and remainder of the cargo, but the captain also became liable to imprisonment; so that we were placed upon a footing with the Spaniards in the rigorous punishment to which they are liable alone.

The two governments at length perceived the necessity of introducing more clearness into some of the stipulations relating to our commerce; and, on the 24th December 1786, they concluded a new convention, wherein every thing relative to contraband is distinctly explained, and which limits the penalty upon detection to the simple forfeiture of the articles smuggled.

This convention, embracing no other objects than what bore reference to smuggling, the search of vessels, and some other objects of minor importance, it leaves room to wish for a treaty of commerce, which may become a principal source of future prosperity to our country.

This treaty becomes so much the more necessary, from the Spanish government having made many violent attacks on our commerce; with a view sometimes of encreasing the revenue, and at others of promoting the trade, and industrious habits of its own population. The principal of these it may not be amiss to enumerate.

As early as the reign of Philip V., the privileges of a great number of Frenchmen were disputed under pretext that they were not simply travellers, *transcuntes*; but had become domiciliated, and consequently liable to be treated as Spanish subjects. In 1720 there even appeared a schedule, which circumscribed with numerous restrictions the quality of *transcuntes*, (the only one which Spain, wearied with claims respecting foreign privileges, was any longer willing to allow;) numerous claims, arbitrary, and some-

times contradictory decisions, and an uncertainty among all foreigners, such were the consequences of this ambiguity.

In 1779, upon the representations of many corporations animated with the laudable desire of reviving industry in their country, and of banishing sloth and misery, government put in force anew an ordinance of the reign of Philip IV., which prohibited the importation of all *works completed*; vague expression, to which the custom-house officers applied the most vexatious interpretation. In 1782, always under pretence of securing the prosperity of the Spanish manufactures, particularly that of silk, Spain made a new tariff (*Arancel*), which considerably augmented the duties payable on most of our manufactures of luxury, and absolutely prohibited a great number. This tariff, and those prohibitions, were so vaguely expressed, that they left a wide margin to the malevolent caprice of the customs' officers. Hence the risks which our manufacturers ran in exporting, and our merchants resident in Spain in ordering goods, which, when they arrived at the Spanish custom-houses, were either detained to await the decision of government, or were not allowed to enter. Hence the failure of speculations, hence reiterated claims to which the Spanish government did justice rarely.

Some comparisons between the tariff of 1770 and 1782 will suffice to shew the enormity of the encrease of duties.

Plain, striped, and figured ribbon, were taxed at 240 maravedies per lb. They were augmented to 1530 gold spotted gauzes, were taxed at 48 maravedies per vara; and gauzes with silver flowers at 102. The tariff of 1782 raised the least to 153 maravedies, and some to 612 maravedies per vara.

Different stuffs, which embroidered with circles of spangles cost no more at the manufactory than 30 livres per vara, were subjected by the tariff to a duty of 96 rials, or 24 livres per vara. Had not these impositions a tendency to prohibit them entirely, or at least to encourage their fraudulent introduction?

Twenty other similar examples of malevolence, or fiscal avidity might be cited.

Spain did not confine herself to these injurious measures, she appeared more inclined to annihilate our manufactories, than to encourage her own. By a private arrangement in 1698 with Eminente, at that period farmer of the custom dues at Cadiz, we payed but very moderate duties upon the importation of linen from Brittany; which served to place them on a level with those of Silesia, less perfect, but at the same time cheaper than ours, and on that account more attractive. The consequence was, that some of our linens paid no more than 5½ per cent. on their value, whereas those of Silesia, of equal quality, paid from 10 to 12. We quietly enjoyed this concession, precarious it is true, on account of our having neglected to convert it into a right by having it inserted in our different treaties with Spain. We had little reason to expect at the close of a war in which we had been allied, and which ought to have drawn more closely the knot by which we were united, to be deprived in 1783 of a favour which gave encouragement to one of our most considerable branches of industry, and placed ours upon a level with all other foreign linens. We have frequently complained of this innovation, but constantly in vain.

The tariff of 1782, however, increased the duty of importation on all foreign merchandize; they have been afterwards so much augmented by different impositions, that some articles upon their introduction into the interior of Spain, pay as much as from 80 to 90 per cent.; and none less than 30. Since the treaty of peace at Basle, some abatement from this excessive rise on the taxes, has been made in our favour, but we have yet much to obtain. The tariff of 1782, even as it stands at present, is incompatible with the ready sale of the produce of our manufactories, and it is upon them principally that certain regulations made posterior to this tariff press heavily.

At first the exportation of all foreign cloth to Spanish America was prohibited, as if the manufactories of Spain were competent to its supply. The inconvenience of this prohibition was shortly felt. It was modified by a regulation which allowed a third part of the cloth exported by every vessel, to be of foreign manufacture; a measure insufficient and frequently eluded both through interest and necessity. It is consequently a second source of fraud and litigation.

In 1789 Spain shut out from exportation to her West Indies, all stockings, understockings, and ribbons, of foreign manufacture without exception, &c. &c. The same year, tardy reflection caused an exception to be made in favour of thread stockings, provided that they formed no more than one half of the cargo of that description, on board each ship destined for the West Indies; a restriction which rendered the exception nugatory.

Manufacturers of hats in foreign countries have also suffered materially from the prohibitory regime of Spain. Their importation into Madrid is rigorously interdicted and excepting castor hats all others are excluded from their American trade, and lastly silk stockings are a principal object of their prohibition. All finish white silk stockings are shut out from her colonies, and even from the capital, but it is well understood that the Catalans find an advantage in introducing our stockings, to which they apply the marks of their different manufactories.

For a long time our manufactories of Languedoc, of Nîmes particularly, had been accustomed to furnish the ladies of Peru with stockings. For this they had looms constructed on purpose, in which they worked their stockings with broad clocks, embroidered in different colours; but the Spaniards imagined themselves competent to the supply of the Peruvian ladies according to their taste. They set up similar looms for the manufacture of stockings, and flattered themselves at first with rivalling, afterwards of entirely supplanting, our manufacturers; when all at once their government absolutely prohibited the admission of our Peruvian stockings. Our manufacturers of Nîmes thus found themselves overstocked with an article which had no other market than Peru. They had even shipped a large cargo for Cadiz, which was thrown on their hands. In vain, in 1792, did they appeal to the good faith of Spain. They represented the immense loss with which they were threatened. Their statement shared the disfavour with which at that period we began to be treated. At the instant of the rupture there were two or three hundred thousand dozens of these stockings in a state of sequestration in the custom-house at Cadiz.

It will be worthy the equity of the Spanish government, it will but be consonant with the good intelligence subsisting between the two nations, now more closely allied than ever, to interdict mutually, for the future, such prohibitory regulations; since taking those by surprise, on whom the injury falls, it may eventually occasion their ruin. Doubtless every government has the right to exert all its means for the encouragement of the commerce and the industry of its subjects; but where wisdom marks their conduct, they refrain from those sudden measures which carry the appearance of perfidy, and the infallible consequences of which are the alienation of the confidence of all commercial nations, and the furnishing aliment and excuse for smuggling.

Smuggling, the name of which alone excites alarm in the Spanish government, has no wider field for its exertions than that afforded by the port of Cadiz. It becomes naturalized in every part where prohibitions are numerous; the temptations to break through them, frequent and highly seductive, particularly where the profits which result from contraband are sufficiently large to bear the sharing of them, with those who being but meanly paid for preventing it, gain much more by connivance with the smuggler.

gler. Hence in general it has no agents more active or more faithful than the understrappers of the custom-house. That of Cadiz is under the direction of an administrator, who in general is very severe. Not so much can always be said of the eight inspectors, or *Vistas*, who are subservient to him, and whose function it is to examine all merchandize that is imported or exported, to value them, and tax them according to this valuation. One readily conceives, how arbitrary all these operations must be, one knows the abundant resources of fraud, especially where its inspectors are accomplices. All the tax makers of Europe may take a useful lesson in this respect from Cadiz. The rigour of the administrator is ineffectual against the stratagems of so many agents conspiring against him. In 1785 this place was occupied by a man as rigorous as virtuous, *Don Francisco Vallejo*. The abuses of which he complained, but did not repress, occasioned the deputation of a purgatory commission. The avidity and the infidelity of the clerks of the revenue were punished; and the custom-house of Cadiz was regenerated. Every thing was to assume its due order. Smuggling was at its last gasp, expiring beneath the lash of authority, and the Argus-care of vigilance. These brilliant ideas, however, were fallacious; shortly after *Vallejo* was replaced by *Don Jorge Francisco Estada*, a still more rigid director, if such could be, than was his predecessor. But smuggling is a plant which takes such deep root in the soil in which it is naturalized, that although it be lopped, nay felled both branch and stem, its root will yet give suckers. The smuggler keeps at a distance, and conceals himself at the critical period. As soon as it be passed, interest takes up anew her accustomed habits, and cupidity resumes its audacity. In spite of the rigid *Estada*; this was the condition of smuggling in 1793.

If since then it be diminished, it is owing to their being less opportunities for its manifestation. The long residence of one of our squadrons at Cadiz, could not fail to nourish it; but it prospers highly only when commerce is in its full activity, and the trade of Cadiz suffered greatly from the war with us. It suffered still more from that with England, but it is about to resume its ancient extension, and contraband to make up for lost time.

Cadiz is indisputably the most opulent and the handsomest city in Spain. Notwithstanding it be circumscribed in such a manner by its position as to prevent its being enlarged, its population in 1800 was 75,000. The horrible epidemy of the succeeding year diminished it a fifth part. In order to find shelter for so large a number of people upon so small a space, they have been obliged to be great economists of their ground: hence all the streets of Cadiz, with the exception of *La calle ancha*, are narrow, and generally dark, owing to the great height of the houses; but the city is remarkably clean, well paved, well lighted, and ornamented with handsome ramparts, which serve for promenades. The neighbourhood of the sea renders the heat here much more tolerable than at Madrid.

The warehouse of the wealth of both worlds, Cadiz abounds in almost every thing. Excepting water, all the requisites of life are here to be found; and all its amusements at the theatre, in the vicinity of verdant meadows, and well cultivated land. Those amusements, however, which are the result of a well cultivated mind, might here be sought in vain; enjoyment, in the most rigorous sense of the word, absorbs here all the faculties; and calculation, all those of the understanding. The one speaks for itself and finds its apology in the climate. The other is the result of a concurrence of circumstances to which Cadiz principally owes its importance and prosperity.

CHAP. VIII.—*Industry of Cadiz and its neighbourhood.—On its linens.—Its salt pits.—Of the bay of Cadiz.—Road from Cadiz to Chiclane; from Chiclane to Algeiras.—Observations on agriculture in Spain.*

ALTHOUGH commerce either legitimate or fraudulent absorb almost all the capital and attention of the inhabitants of Cadiz and its neighbourhood, yet are not manufactures entirely neglected. At Cadiz there is a score of looms for ribbons and silk netting, which are seldom at work, but which have an immense sale of their pretended produce. It will be guessed that the chief occupation of these manufacturers is that of affixing their mark to foreign goods. Thus it is as well that stockings from Nîmes are shipped as Spanish manufactures for their West Indies.

At Port St. Mary at the isle of Leon, at Xeres there are manufactories of stained linens which have made great progress for several years back. These linens and those of Catalonia are the only ones allowed to be exported to America; a judgment of the extent of smuggling in this article may, however, be readily formed from a comparison of the quantity sent to America with the whole these looms are capable of furnishing.

At Port St. Mary there is a wax bleaching house, through which all foreign wax intended for America is obliged to pass. But its intervention is almost always eluded by the payment of the two ducats per lb., which is its demand for bleaching.

The Spaniards were once on the eve of producing at the Havannah all the wax requisite for the consumption of their colonies. Upon the cession of the Floridas to the English in 1763, some Spanish colonists who withdrew to Cuba carried with them a number of hives. The bees increased prodigiously in this new country to which they had fled as I may say for refuge from the conquerors; like tribes among men, who escaping from persecution leave their native soil, and bear with them away their riches and their arts. But in the planters of the Havannah they found new persecutors. Intimidated by the loss their sugar plantations experienced from these new guests, they kindled fires to drive them away. This scheme succeeded so well that Cuba, forsaken by the bees, could no longer supply any honey, and Spanish America was again obliged to receive for her consumption the wax of Barbary, of Poland, and Hanover.

It will be asked if any sensible diminution of the trade of Cadiz has taken place since 1780, as was predicted by the jealous spleen of its inhabitants? There has not. These predictions did not then wear the appearance of likelihood. Cadiz is so well situated, so rich, has such fixed possession of the trade to the Spanish Indies, that for a length of time to come she may brave the competition of any other port. Nevertheless, the peculiar situation of Catalonia and Valentia has been of material advantage to them, particularly in 1789. Government a little previous had made a regulation, that of every vessel sailing for America, national merchandize should form at least a third part of the cargo. These ports were enabled to ship wines, brandies, silks and stained linens, and in these articles seemed to vie with Cadiz. But the manufactories of Catalonia and Valentia, not being competent to repeat such considerable sales, nor able to give such long credits, or so easily to wait for returns, as the merchants of Cadiz, whose means are equal to their extent of trade; they soon regained possession of their original superiority.

One of the most considerable articles of export to India, and that on which the profit is most secure, is foreign linens.

They consist of, and almost exclusively, those of Brittany, Silesia, and Ireland. In 1787 and 1788 it was noticed that the demand for those of Brittany had rather increased than diminished, yet in a smaller degree than those of Silesia. The exportation of those of Ireland, the price of which is between that of the two others; is of late years greatly encouraged by the British government. Ours maintained themselves only by their superior quality; but even in this respect they find a formidable rival in those of Silesia, which are recently greatly improved.

The importance of the linen trade to Cadiz may be judged by the tables of its exportation of foreign merchandize in the years 1791 and 1792.

The whole sum of its exports of this description being 164 millions of rials, the article of foreign silks amounted to from 8 to 9 millions of rials; woollen goods to from 22 to 23 millions; and the article of linen alone to upwards of 100 millions.

At that period, the value of national merchandize exported was not equal to that of foreign, but by degrees it has come very near to it. In 1790 it scarcely exceeded 102 millions of rials. In 1791 and 1792 it was from 115 to 120 millions; of this above 60 millions consisted of silk articles; nearly 16 millions of woollen goods; and from 17 to 18 millions of linens. In 1792 it was the opinion of some that Spain was enabled to answer the demand of its colonies for fine and second cloths, but not for that of an inferior quality. At this epoch her importation of foreign silk amounted to from 24 to 25 millions of rials.

But at once to give an idea of the extent of the commerce of Cadiz, it may be sufficient to state that in the year 1792 its exports to the colonies alone amounted to 270 millions of rials, and its returns thence to more than 700 millions!

The existence of funds adequate to the support of such an immense business, will of itself secure to Cadiz for a length of time to come the enjoyment of mercantile prosperity.

The manufacture of salt is the most interesting branch of industry in its neighbourhood. The salt-pits encompass a great part of the bay from the Punta to Port St. Mary. This is their manner of working them.

In the first place, sea water is introduced, by means of a little sluice, into a large basin, cut into wide canals of equal depth. It remains there a certain time, during which its lighter parts evaporate from the heat of the sun. From this first reservoir it runs into other canals not quite so deep, where it is further volatilized. The corrosive quality of the water remaining is so great, that the workmen can no longer remain with their feet uncovered without having them burned as if dipped in aquafortis. The water, in this state, is let into a long and narrow canal, which runs by the side of a square space, divided into quadrangular compartments. From this canal, where it is anew exposed to the action of the sun, it is thrown with scoops into small basins where it receives the last heating, while the workmen continually stir it with long rakes. The sediment it deposits becomes as hard as stone, if it be suffered to assume that consistence, and the workmen are constantly employed in detaching, taking it out, and pounding it. This continued agitation raises a white scum to the surface, which is carefully taken off, and which produces a much whiter, but a weaker salt than the sediment. The rest is laid in great heaps in the open air. The necessary quantity for the King's salt magazines is taken from these heaps, and paid for at the rate of two piastres the *last* of two hogsheds; but it is sold again at a hundred and twenty piastres to all individuals except fishermen, who have it cheaper. The salt manufacturers dispose of what remains as they please; and as the rains of the autumn threaten them with considerable waste, they lose no time in selling. The nations which purchase it are Sweden, Denmark, Holland, England,

England, and particularly Portugal. The cargoes shipped by the Portuguese are mostly sent to the coasts of Galicia and Asturia, where this commodity is wanted, and which they have long had an exclusive privilege of furnishing with their own salt. The fishermen from Saint Malo, Dieppe, and Granville sometimes go to the bay of Cadiz to take in cargoes of salt for Newfoundland; and when our salt-pits fail, we take large quantities of it for our own consumption.

Every individual who wishes to establish one of these artificial salt-pits upon his own ground is at liberty to do it. He may sell the produce to foreigners, but not to his countrymen, salt being in Spain, as in France, exclusively sold for the King's account. Guards are placed round the heaps of salt, but do not always secure them from thieves and smugglers.

Cadiz, like the greater part of large commercial towns, contains but few monuments of the arts. Of late years, however, some buildings have been erected in a good stile, mostly the work of strangers. The former Italian opera has been converted into an assembly-room for reading the news, and other innocent recreation. It is called the *Comorra*, and consists of large rooms perhaps too much adorned. The custom-house is a new building of tolerably handsome appearance. The national theatre is tastily planned, and well laid out. The new cathedral, begun in 1722, had in 1769 cost more than four millions and a half of rials, and will cost two millions of piastres before it is completed. The wretched plan upon which it was begun will prevent its ever becoming a master-piece, notwithstanding the expence of its erection and its sumptuous decorations.

But the church of San-Antonio is a sacred edifice, whose defects are still more striking; it was built as an ornament to the handsome square of the same name, which it only serves to disfigure.

In the church of the capuchins is an *Ecce homo* of Murillo, worthy of admiration, and some other master-pieces of his school.

A foreigner arriving at Cadiz will consequently enquire for the exchange of a commercial town so widely celebrated, and will not be a little surprized at understanding there is none. One would imagine that its inhabitants look upon the god of commerce in the same light as the ancient Germans were wont to look upon their god; as somewhat too majestic to be circumscribed by walls of stone, somewhat that could be worthily adored beneath the vaulted roof of heaven alone. But the almost constant fineness of the climate explains this apparent singularity.

The ramparts of Cadiz are more an ornament to the town than a means of defence. Its fortifications are in good condition on the land side. The entrance into the bay would be but very imperfectly defended by fort St. Catherine on the one side, and fort St. Sebastian on the other. The fire of these two forts does not cross. The one is placed on the continent opposite to Cadiz; the other is connected with the town by a very uneven sandy strand which is covered at high water.

The passage from the great bay to the bay of Puntalis is much better defended by the two forts *Matagordo* and *San Lorenzo*, placed opposite to each other, where the bay is contracted.

You cross the strait protected by these two forts to go to Chiclana, a place of amusement, a delightful resort for the inhabitants of Cadiz. For the position of their town, which is of very trifling extent for a population of 75,000 persons, and almost wholly surrounded by the sea, leaves them very little room for exercise. A quarter of a league from the gate towards the land barrenness begins, and maintains its empire over several leagues around, if some few kitchen gardens be excepted, and some orchards in the vicinity.

cinity of the isle of Leon, where artificial watering has remedied the natural barrenness of the soil.

To Chiclana, therefore, do the inhabitants repair to enjoy that verdure which they want at home. A favourable wind and tide carry them over in two hours. Leaving the isle of Leon to the right, and the Carrack to the left, you pass the bridge of Suaço, that joins the whole island of which Cadiz stands on the north side, to the continent. Under the arches of this bridge the bay becomes so narrow that, after passing them, it is nothing more than a wide canal, which soon afterwards separates into different branches. One of these leads to Chiclana, which is built on the right bank, commanded by several eminences, and particularly by the ruins of an old Moorish castle.

Here several merchants of Cadiz have country-houses, which they embellish and surround with that verdure looked for in vain at their houses in town. During two seasons of the year Chiclana is particularly agreeable, the spring and autumn. The ladies of Cadiz, who unite the most enchanting graces of the Andalusian women to those polished manners which result from their intercourse with foreigners, the lovely *Gaditanas* naturalize here for some weeks all the enjoyments of the city; grand entertainments, balls, concerts, the whole display of opulence, and the toilet's nicest art. It is, as it were, a list opened by luxury and taste, to which the deepest speculators resort to smooth the wrinkles of care and calculation, and be reminded occasionally that there is something in the world which is even more precious than gold.

From the eminences which command the valley of Chiclana, we see at one scope the isle of Leon, Cadiz, the bay, and the sea beyond it. The eye follows the course of the river Santi Petri till it falls into the sea. Turning to the east we perceive *Medina Sidonia*, whence comes the wind called *Solano* and *de Medina*, so dreaded by the inhabitants of Cadiz, from its pernicious breath, exciting both crimes and disorders in the city. From the same point of view we embrace the vast plains of southern Andalusia, which we are about to pass over in the way to Algeiras and Gibraltar.

Algeiras is fourteen leagues from Chiclana. I performed the journey on the same horse in one day in summer, crossing the most desert country that can be found amongst those which are not quite uncultivated. It is true I crossed plains, to avoid circuits, which would have led me through some villages. But will it be credited that in all this road, except Vejer on the right at a considerable distance, and Medina Sidonia on the left still farther off, I saw no other human habitations than four or five groupes of those miserable cabins, called *Cortijos*, in which labourers lodge a part of the year.

For ten of these leagues I travelled over the duchy of Medina-Sidonia, through corn fields and pastures. In no part could I discover the vestige of an human habitation. Not an orchard, not one kitchen garden, not a ditch, nor a stile. The great proprietor seems to reign here like the lion in the forest, scaring away with his roar whomsoever might else seek his haunts. Instead of men and women, I met with seven or eight great herds of horned cattle and some troops of mares. On beholding them unrestrained by the bridle or the yoke, wandering over an immense space unbounded to the eye by enclosure or barrier, we may imagine ourselves carried back to the first ages of the world, when animals, in a state of independence, divided with man the dominion of the earth, found every where a property, themselves without an owner.

Andalusia is thus unpeopled in all those parts wholly set apart to corn and pasturage. It has been divided into great possessions as far back as the conquest of it by the Moors. The principal Castilian nobleman, who then accompanied the conquering kings, obtained enormous inheritances in perpetuity, according to the fatal custom introduced into almost the whole of the monarchy. The extinction of males in the great families
is

is incessantly increasing this complaint. Rich heiresses carry with them their opulent portions into families not less opulent, so that the greatest part of Spain may in time become the inheritance of the few families which shall survive the rest. As one individual cannot manage such vast estates, the proprietors farm them out to different persons, but this for three years only, or five at most. Another circumstance concurs with these destructive customs to prevent agriculture from flourishing in Andalusia. The land is divided into three portions; one is cultivated, another remains fallow, and the third is set apart to feed the cattle belonging to the farmer, and which he augments as much as possible, to reap what advantages he can from his short lease. This is what gives an appearance of depopulation to vast districts susceptible of rich cultivation. The first improvement requisite, therefore, in the agriculture of Andalusia, would be to grant longer leases. The example of Catalonia, Navarre, Galicia, and the Asturias should serve as a lesson. There the leases are for a considerable number of years, and cannot be broken by the caprice of the proprietors: every kind of cultivation is there in a flourishing state; each farmer creates himself a little establishment, and improves and fertilises the land which he is sure to hold for a long time. What a contrast between this state of things, and that I had before my eyes for ten leagues after leaving Chiclana.

At the end of these ten leagues you begin to ascend with great difficulty an enormous chain of high mountains, which do not lower again before they reach the western part of the bay of Gibraltar. From their summit you perceive the famous rock of Gibraltar rising from the bosom of the waves like the genius of the stormy cape described by Camoens. From this point the eye commands the fortresses, the outlines of which appeared to me perfectly well defined in the serene horizon, and at the same time embraces the town of Algeiras, the whole circuit of the bay, two little rivers which fall into it, the town of St. Roch, the slope which leads from this town to the lines, and the tongue of flat and narrow land that separates them from Gibraltar; and at a distance to the right, at the extremity of the horizon, we imagine, rather than discover the coast of Africa.

CHAP. IX.—*Algeiras.—Lines and Camp of Saint Roch.—Details respecting the floating batteries.—Appearance of Gibraltar.*

ALGESIRAS, the extremity of the fourteen leagues which separate Chiclana from the bay of Gibraltar, is a town pleasantly situated on a slope, which terminates in the sea. A very little river (the Miel), which rises in the neighbouring mountains, washes one of its sides, and gently runs on to the sea; upon its right bank is a little dock-yard, made use of during the siege of Gibraltar for the construction of some of the gun-boats. At the time of the freshes, it has water enough to float such little vessels to the sea, which is distant but a few paces. Near this place are the ruins of the old citadel of Algeiras, in which the Moors defended themselves for some time after their city was taken. Algeiras, as well as Saint Roch, was peopled at the beginning of the present century with Spaniards from Gibraltar, unwilling to live under the dominion of the English. In order to draw thither these refugees, privileges which it still enjoys were granted to the town.

The little island of Palomas, called also the Green Island, is very little distant from the strand of Algeiras: it has a fort in which a company detached from the garrison of Algeiras does duty. This island is so fine and regular, that it seems as if traced by the art of man for the embellishment of a garden after the English plan.

Algeiras is supplied with water in a splendid manner. It is brought to it from the distance of a quarter of a league by a new aqueduct built with hewn stone.

A packet-boat sails twice a week from this town to Ceuta, a Spanish sea port, at five leagues distance, on the coast of Africa, and directly opposite to Algeiras. The passage is often made in three or four hours, but it sometimes takes up nine or ten : the price is four rials ; no great sum to be transported from one quarter of the world to another.

The little port of Algeiras is very confined in its commercial speculations ; it receives some cargoes of corn and brandy by Catalonian barks ; and its exportations chiefly consist in coal from the neighbouring mountains.

A great part of the two leagues from Algeiras to Saint Roch is by the side of the bay. There are two little rivers which fall into it to be crossed in boats, *El Río de los Pulmones* and *El Guaraípe*, which might be taken for an arm of the sea. After passing the latter, you leave the bay to reach the back part of the hill upon which the town of Saint Roch is situated, badly paved, and of a wretched appearance : the environs of which however are agreeable, and carefully cultivated.

Two years after the peace it continued to be no easy matter to pass the lines of St. Roch. A formal order, the offspring of the puerile spite of Florida Blanca, interdicted all communication between Gibraltar and the Spanish continent. Notwithstanding this, I obtained from the commander of the lines permission to approach Gibraltar in company with a major of the place. We left *Buenavista* to the right, a large house upon an eminence, in which the Duke de Crillon, his aides-de-camp, and all their retinue lodged, and whence you have a view of Gibraltar, the two seas and the coast of Africa. At length we arrived on the ground of the famous camp of Saint Roch. Destroyed by peace, as other human establishments are by war, it presented nothing but a heap of ruins. We crossed this ground diagonally to go straight to the Mediterranean, and follow the coast to Fort Saint Barbe which forms the right of the lines : on presenting the order of the commander, the great gate was opened to us which leads from the lines to the fortress : a petty officer besides was sent to watch rather than direct our motions. We noticed the traces of the works carried on during the siege, the trenches and epaulement thrown up by General Alvarez, and which were so much spoken of in the Madrid Gazettes * ; the

tower

* A witticism published at Paris on the subject, and during the siege of Gibraltar, inserted in the first edition of M. Bourgoanne, and omitted in his edition of 1803, the translator has deemed possessive of too much pleasantry to fail of being agreeable to the English reader ; he has therefore given it in a note.

Illustrious warriors of Saint Roch,
Between us, this exceeds a joke,
Mean you to tarry here for life,
Or one day end the mortal strife ?
Whence can you not contrive to join
Dispatch to valour so divine ?
Your patience still may last no doubt,
But ours is fairly wearied out.
Then heroes of the long blockade,
Conclude at length your vain parade ;
And let us hear of your defeat,
Or that the enemy is beat.
Incessantly your batteries roar,
As they would rend the world asunder,
While tranquilly the English snore,
Unheeded of your mighty thunder :
Or if they answer you by chance,
'Tis out of common complaisance,

A kind

tower of the mile, situated between the besiegers and the besieged, the only object which had escaped their mutual ravage; and the place where the English had made some little gardens before the fortress, and beyond the limits fixed by the peace of Utrecht.

After coasting the bay for some time, we took a direction towards the Mediterranean, to survey nearer at hand, and in different points of view, the rock which for five years had been the object of so many speculations; but with a conductor so strict as that with us we did not presume to go beyond a small tower, situated close to the Mediterranean, and near which the first English corps de garde is stationed. On this side, the fortress is thick beset with batteries, mostly in a very steep sloping direction. Here we saw the mouth of a mine which the Duke de Crillon had hollowed within the rock, and by which he intended to revenge the fate of the floating batteries, when the peace obliged him to desist, and left the foundation of the fortress secure. This was not the only point of the rock the Duke de Crillon threatened; on the Mediterranean side, the declivity, though so steep as to be almost perpendicular, does not continue so to the surface of the earth. Between the foot of the mountain and the sea, there is a kind of path which leads to Europa point. At the entrance of this path, a second opening in the rock had been made.

Notwithstanding the sarcasms thrown out against both these attempts on Gibraltar, I have been assured by persons who were present, that when General Elliott, after hostilities had ceased, walked with the Duke de Crillon round the place, he appeared surprised at seeing the progress made in the first of these mines, and said to the French general, *If he had known the state of them, he should not have been so easy*. Was this expression sincere on the part of the English hero, or a specimen of French complaisance? On this I shall not undertake to decide.

Rather do I prefer presenting my readers with a succinct but well authenticated account of the grand enterprize which arrested the attention of all Europe, and the catastrophe which was so unfortunate.

The court, wearied with the useless blockade of Gibraltar, a source of ridicule to all Europe, and even to the besieged themselves, thought seriously of taking the fortress by some uncommon means, against which neither its steepness, its formidable artillery, nor the skill of General Elliott, might afford any adequate resistance. It received projects from all quarters, some of them hardy even to extravagance, others of such a

A kind intention to assuage
Your wild yet not unfounded rage.
Four years experience should suffice
To make still greater blockheads wise.
Your laboured works grow old, and you,
Heroic Sirs, are grown old too.
'Tis time to quit these martial cares,
And leave the business to your heirs,
Who some few previous races run,
May end the siege by you begun.
Your trenches, batteries, and mines,
Your mortars, and fire proof machines,
Which your Gazettes with pride display,
The coffee-house alone dismay.
In vain you block, in vain you batter,
Those you would starve, grow daily fatter,
And at the worst will only die
Of corpulence and lethargy.

whimsical description, that they could not be mistaken for serious. Of this kind I received some myself. One, forwarded to the minister, formally proposed the construction in front of the lines of St. Roch, of an enormous cavalier, rising to a greater elevation than Gibraltar itself, and by this means depriving it of its main defence. The author had calculated the number of cubic fathoms of earth which it would require, the number of hands necessary, and the length of time which this prodigious work would demand; and proved that his plan would be less expensive, and less murderous, than a prolongation of the siege, in the manner it had been carried on.

Another conceived the idea of filling bombs of such a horridly mephitic quality, as, upon their explosion, should either drive the besieged away from the fortress, or poison them on the spot.

At length, the project of Darçon was received, and fixed more strongly the attention of government.

This project, conceived by this engineer at a distance from Gibraltar, and the failure of which has not tended to annihilate the reputation he has acquired of a man of great genius, this project was brought to perfection, and modified by himself within sight even of the garrison. But what a number of difficulties it had to encounter! French impatience, national jealousy, the bickerings of rivalry, the vexatious inquietude of commanders, the pretensions of self-love, the thoughtless impetuosity of some of its co-adjutors, the perfidious plots of others, and the presumptuous want of foresight of almost all; conjointly all concurred to cause the ill success of a project which one cannot refrain from admiring in spite of its failure, where one has had an opportunity of studying it in detail.

It was known, as I may say, but by the existence of ten praams, which, on the 13th September 1782, by rashly exposing themselves to the fire of their batteries, were reduced to ashes by the English. Such summaries are very convenient for idleness and malignity, but would form very defective elements for the historian. Enlightened by memoirs of the day, he will rather say, that, if this great undertaking failed of success, it was owing to the concurrence of circumstances, over which the genius of Darçon had no controul whatever. One of the principal of these was the precipitancy with which the project was executed before every thing was in readiness, to secure its success. It is well known, that these ten praams were formed in such a manner as to present towards the battery a broadside covered over with a blind three feet in thickness, which was kept continually wet by a very ingenious piece of mechanism. By this contrivance it was computed, that the red-hot balls would be extinguished immediately wherever they penetrated: but this first contrivance was rendered incomplete by the unskilfulness of the caulkers, which prevented the effect of the pumps, destined to supply the water. It took effect therefore, and that only in a partial degree, on board of one of them, the *Talla piedra*. But this was not all. Although they had only very carelessly founded the stations which they were to assume, they had yet pointed out the course to be taken in order to avoid running aground, and keep a suitable distance; another precaution which turned out useless. *Don Ventura Moreno*, a brave seaman, but inadequate to the combination of a plan and carrying it into effect, considering his honour called in question by a letter which General Crillon had wrote to him in the evening of the 12th of September, in which he stated, *if you delay the attack, you are not a man of honour*, he hastened the sailing of the praams, and commanded them to take a different position to that laid down in the original plan. This change of positions was the principal cause of the fate of the day.

From this mistake only two of the praams could reach the distance of two hundred toises, that which was previously concerted; the *Pastora*, commanded by Moreno himself, and the *Talla piedra*, on board of which was the Prince of Nassau, and Darçon. These two, however, were exposed to the most tremendous of all the batteries, the royal bastion, whereas, according to the plan laid down, all the ten were to have grouped round the old mole, and receive only a side fire from that battery.

The only two praams which occupied this perilous position both caused and experienced considerable damage. The *Talla piedra*, in particular, received a mortal blow. In spite of the blind, a red-hot ball penetrated to the dry part of the vessel. It was very slow in taking effect. The *Talla piedra* began her fire about ten o'clock in the morning, the ball struck her between three and five, but the ravage it caused was not deemed irremediable before midnight. The *San Juan*, which was near it, suffered the same fate. It appears to be evident, that the other ten received no injury.

What however was still more afflicting, every thing was wanting at once: stream anchors aftern of the praams to tow them away in case of accident; and boats for the reception of the wounded. The attack was to have been supported by ten vessels, and more than sixty gun-boats and bombs. Neither bombs, nor boats, nor vessels, however, made their appearance.

To conclude, in the position laid down, the praams would have been supported by the fire of one hundred and eighty-six pieces of cannon from the lines of St. Roch. This concert became impossible. More than four hundred cannon were to play at once on the bastions of the *North*, *Montagu*, and *Orange*. With a superiority of nearly three hundred pieces, Darçon flattered himself he should be able to silence the artillery of the place. But what was his consternation when he saw that the besiegers had no more than from sixty to seventy cannon in play, which were answered by the enemy from the mouths of two hundred and eighty pieces.

The combined squadron remained a quiet spectator of this strange disorder. Guichen, who commanded our fleet, offered his assistance to Moreno, who returned for answer, it was not wanted.

Bad became worse, and no remedy was at hand. Of the ten praams, eight were at too considerable a distance either to do much harm, or be liable to any great injury, the two others, to use the expression of Darçon, carried the *gnawing worm* in their sides. Moreno, despairing of being able to save any of them, gave orders to let those continue to burn which were already injured, and that all the rest should be set on fire. I myself have seen this original order. Such was the close of this day, in which ten vessels were destroyed, master-pieces of human ingenuity, which cost 3,000,000 of livres building (£125,000), and the arming and fitting up of which with cannon, anchors, rigging, &c. cost, two millions and a half in addition (£104,000)*.

Scarcely had this formidable attempt been defeated under the walls of Gibraltar before it was re-victualled by Lord Howe, in sight of our armies and navies. His Lord-

* In the first moment of consternation the inestimable Darçon confessed, that he alone was blameable for the fatal result of the day. For a long time I was in possession of the short but energetic letter, which he wrote to the ambassador Montmorin, on the shores of Algeziras, to the dying noise of artillery, and by the light of the burning praams.

"I have burnt the temple of Ephesus; all is lost, and all owing to me. My only comfort under my misfortune is, that the glory of the two sovereigns remains unfulfilled. Accept the homage," &c.

Nevertheless when he recovered from his confusion, Darçon, in a very learned memoir, endeavoured to qualify the confession which had escaped him, and to prove that more than one accomplice were concerned in the failure, or rather that the blame was chargeable to circumstances alone, and those of the most fatal and imperious nature.

ship boldly sailing up the Mediterranean afterwards with thirty-six ships. From *Buena Vista* he was perceived on his course from the one sea to the other; and general opinion pronounced him running on ruin. The fifty-two vessels which were in the bay weighed an hour and pursued him. But Howe laughed at our manœuvres, as fortune had done at our projects; and, after wearying the combined squadron in a cruise of a fortnight, repassed the strait in as full security, as he had placed the fortresses.

So many crosses created vexation, but not discouragement. The two French Princes alone and their brilliant suite, who imagined that they had only come to the columns of Hercules to be present at the surrender of Gibraltar, deeming success no longer practicable, testified an impatience to be gone, which was far from satisfactory to the court of Madrid, but which nevertheless it granted. It was at the Escorial, upon their return. The reception they found at this second interview, was scarcely so affectionate as at their first appearance. The enthusiasm which they had at first excited had abated, which was to be expected.

The theatre of these events laid now before me, with how much interest did I examine the different approaches, and the whole compass of this famous rock. On the side of the Mediterranean it is most perpendicular, but is more sloping toward the bay of Algeziras. It is on this species of talus, that the art of fortification has displayed means of defence so prodigiously numerous as can hardly be conceived.

Nature, as if to render Gibraltar inaccessible on all sides, has placed between the foot of this fortress, to the west, and on the side of the bay of Algeziras, a deep marsh which leaves between it and the place, as far as the land gate only, the breadth of a narrow causeway, commanded by an hundred pieces of cannon. A small dyke between the marsh and the bay runs by the sea-side to confine the water, and terminates at the land gate; and the marsh is contained in the enclosure of the place by a palissade, which begins at the foot of the mountain and terminates at the sea. This palissade was the first victim at the siege of Gibraltar. It was re-established after the peace. The old mole is distinctly seen from it; it is a kind of narrow bank or causeway, with cannon planted on both sides, and entirely masks the new mole, which is half a league behind it.

After having an interview with three English officers, separated by this palissade, and who pressed us in vain to infringe upon the order of the court of Madrid, but with whom we could not refuse drinking a few glasses of porter to the health of George III. and General Elliott, we trod back the road from the lines. Behold, said I to myself, the rock which for five years engaged the attention of all nations. It is almost useless to the English, but they imagining their honour concerned in keeping possession of this spot of land, in spite of nature, which seems to have allotted it to the monarch who reigns over the peninsula of which it makes a part, sacrifice millions to fortify, preserve, and defend it. On the other hand, vanity alone excites Spain to attempt its recovery; and to this chimera, under a monarch sparing of the blood and treasure of his subjects, she sacrificed, for four years together, most enormous sums, the most advantageous military plans, and even the glory of the kingdom, were that glory rightly understood.

CHAP. X.—*Malaga.*—Return to Madrid by Ximera, Gausin, Ronda, Offuna, &c.—*Departure from Madrid, and the cause thereof.*—Three roads from Madrid to Valencia.

THIS would be the proper place for me to conduct my readers back to Madrid, through the kingdom of Grenadas, but I am obliged to confine myself to making them acquainted with Malaga.

In travelling thither from Cadiz, you traverse a very fine country, where high mountains and beautiful plains succeed each other alternately, as far as *Antequera*, a town agreeably situated on the summit of a very elevated mountain. Thence to Malaga there is a superb road, begun in 1783, and which winds for seven leagues between hills covered with vineyards.

Malaga itself is delightfully situated in a climate which is a stranger to rain, excepting in the latter season of the year. On the north and eastern sides, it is placed immediately at the foot of very high mountains, whose summits at times are covered with snow. On the west, is a fertile plain watered by two small rivers. The ridges of the mountains which command Malaga are well cultivated, and covered with almond trees, olives, oranges, lemons, figs, and especially with vines whose beneficial produce circulates at table, from one end of the world to the other. There are more than six thousand vine plots, (*Lagaris*) within the jurisdiction of Malaga. The produce of common years is about 70,000 arobes of wine (2000 butts) more than half of which is exported.

It possesses from eight and twenty to thirty different species of grapes, among which the best are those called *Tierno*, *Moscatel*, and *Pedro Ximenes*. This last name, the origin of which it is difficult to determine, even upon the spot, is given to one of the most valuable Malaga wines, but belongs to no district exclusively.

There is another mode of classing the Malaga grapes, by the different periods at which they ripen. The early grapes are gathered in June. These it is that make the best raisins, and a wine also which is nearly as thick as honey. The *seasonable grapes*, which are gathered in the beginning of September, yield a dry wine of a better quality and stronger; and lastly the *late grapes*, which produce the real Malaga wine. Among these there are some sorts distinguished by epicures, and which being less usual are sold at a higher price than common wines; such is the wine called *Lagrima de Malaga*, which is the most excellent of those of the best districts; such also the *Guindas* wine which is no other than the common Malaga wine, in which the tender buds of the black-heart cherry have been steeped, the fruit of which is in Spanish called *Guinda*.

After the vine, the olive tree contributes most to the riches of Malaga. There are five hundred olive presses in the neighbourhood of that town; but owing to the same causes that exist in other provinces, the oil is not of a prime quality; it is, however, tolerable at Velez Malaga, and still better in the vicinity of the village of Churian.

Few people, even in Spain itself, have knowledge of the sugar cane being cultivated round Velez Malaga, and especially at *Torrox*, two leagues beyond. It is true, a scarcity of wood has occasioned these sugar plantations, the ornaments of Moorish industry, to fall into decay, most of the canes serving only for sweetmeats to children who suck them. Among some which still exist, those particularly of *M. Thomas Quilty de Valois* deserve to be mentioned, he keeps two sugar mills employed, the produce of which is little inferior to the sugar of the Antilles. He has likewise established a refinery which has yielded samples of Rum equal to the best from Jamaica. He makes use of sea coal for heating his coppers, which comes sometimes from England, at others from the coasts of Spain along the Mediterranean, where for some time back a sufficiency of coal has been worked from the mines, to satisfy the demands of the department of Carthagena. There are mines even at a little distance from Torrox, but the backwardness of the Spaniards in many instances, notwithstanding their improvement in several matters, is here the cause of their not being worked.

The mountains which surround Malaga are inexhaustible treasuries for the mineralogist. They contain jasper, alabaster, antimony, mercury, sulphur, lead, amianthus, loadstones, &c.

Malaga has no other building which is remarkable than its magnificent cathedral, which is incomplete from a want of hands, and money; and a modern theatre, not destitute of elegance.

In the time of the Moors, this town and its neighbourhood were much better peopled than what they are at present. The city formerly contained more than 80,000 inhabitants. In 1747 its population was 32,000, and in 1789 about 50,000. In the western part of its territory there were more than fifty villages; at present there are no more than sixteen. These facts prove better than all the declamation of philosophy how highly injurious to Spain was the expulsion of the Moors.

Policy has not been the only scourge from which this country has suffered. It has experienced some earthquakes, and thirteen or fourteen times has it been subject to pestilence, the last happened in 1750; and the torrent of *La Guadalmedina*, which passes through it, renders it liable during the rainy season to terrible inundations. It has three suburbs, narrow, dirty, and ill paved streets, and rather bears the appearance of a large than a handsome city; but its territory and its haven unite in making it a town of great importance. Its port is famous for its spaciousness and conveniences. It will contain four hundred merchant ships, and ten sail of the line. Vessels may enter or leave it with any wind. Two moles form its mouth about three thousand toises distant from each other; but the sea recedes by degrees from this coast; and as the *Guadalmedina* throws up a great quantity of sand Malaga may eventually be deprived of its port.

In the interim this town carries on a most extensive trade. The two nations which reap the greatest advantage from it, are first the French, and next the English. In 1791 there entered this port 321 French, 342 Genoese, and 62 English ships, &c. Nevertheless there are more vessels of this latter nation frequent the port than of any other. In 1789, the proportion was nearly a hundred English to eight or ten French merchantmen. The Spaniards themselves resort thither in greater number than formerly. Two only reported there in 1785. In 1793 there were thirty three.

Smuggling has strangely increased within a few years upon the coast of Grenada. Hence severe laws which are attempted in vain to be enforced; hence frequent assassinations which take place with impunity.

A road along the sea shore leads from Malaga to Velez Malaga, a pretty little town a quarter of a league from the Mediterranean, and birth place of the famous minister Galvez. In order to promote industry in this district, he established a manufactory of cards at *Macharavilaya*, a village in the neighbourhood of Velez, which supplies the whole demand of the colonies of Spain.

But let us return to San Roch, in order to resume the highway to Madrid. By a little deviation from the direct road you pass through *Ximena*, a town situated on the declivity of a steep rock. About twenty years ago, the minister Galvez established there a foundry for iron cannon, and ball, destined exclusively for the consumption of Spanish America.

Three leagues beyond Ximena you come to Gausin, a handsome town in the middle of very high mountains, whence the rock of Gibraltar may be distinctly seen. At the foot of it is a deep valley, watered by numerous rivulets in every direction. A great enclosure, belonging to the Franciscans, contributes especially to embellish the scene.

For

For the possessions of the monks are every where well situated and well cultivated ; and serve to enliven the adjacent country.

Beyond Gaufin, the road for two or three leagues lies over the side of the mountains, which are covered with vines from their summits to the bottom of the valleys. The country afterwards becomes more rugged ; and the road as far as Ronda, lies across enormous mountains, in the windings of which waves the most horrid road imaginable. From time to time you meet with wretched villages hung, as it were, upon the sides of naked rocks. Their situation, their names of Gicatazin, Benali Atajate, sufficiently indicate, that built by the Moors in the bosom of the most inaccessible mountains, they served formerly as asylums from the attacks of the Christians. At present they are the haunts of thieves and smugglers.

The road after passing Atajate ascends again and continues to the summit of the high mountains, whence the rock of Gibraltar, is for the last time visible.

We soon afterwards discover *Ronda*, a town surrounded by a double enclosure of rocks, between which runs a small river, and forms a natural fortification where not of utility it is extremely inconvenient. This inconvenience, however, has lately been remedied by the construction of a stone bridge for the inhabitants, of a most tremendous elevation.

To the North East, the environs of Ronda produce fruits of every description, a circumstance not often met with in Spain ; for whether the gardeners want skill, or the nature of the soil be unadapted to their growth, the country of oranges, figs, and olives, is not that of the exquisite fruits which constitute the most ornamental and delicious part of our autumnal deserts. What would incline one to suspect the blame to lie with art, is the circumstance of the King's table being covered with excellent fruits of this kind from the gardens of Aranjuez and Saint Ildefonso, under the care of intelligent gardeners.

Pasarete, famous for its wine, is four or five leagues from Ronda, and belongs to M. Giron, one of the principal inhabitants of Ronda, an officer of distinction, known in the last war by the title of the Marquis *de las Amarillas*.

Grazalema, situated, like Ronda, in the bosom of rocks, is only three leagues from the latter town. The inhabitants having abundance of water, and but few resources, employ themselves on one of the principal manufacturers of Spanish cloths, for the consumption of the common people.

On leaving Ronda, passing through *Cannete*, a large unhandsome town, the country is uneven, and of melancholy aspect, notwithstanding its vast fields and plantations of olive trees ; and after travelling five leagues you arrive at *Ossuna*, the capital of the duchy of that name. The city is considerable, but nothing in it announces affluence, although many of the nobility reside there. It contains an *Alameda*, or public walk, decorated with a fountain : and the traveller, if so disposed, may amuse himself at the expence of a pompous inscription intended to commemorate a very wretched performance.

From Ossuna to Ecija is but six leagues, across a flat country in the best state of cultivation of any in Andalusia.

From Ecija to Madrid is seventy-five leagues, over a country which I have already described. I have now no more left me than to conduct my readers back to the French frontier by the road which I took in 1793, in consequence of an event which made the first month of that year a remarkable epoch.

The court of Spain had long foreseen the storms gathering over the head of the unfortunate Louis XVI. ; and principally with a view to its dispersion, and either giving credit,

credit, or pretending to credit, the assurances of that prince, it received me in the month of May 1792 as his minister plenipotentiary. I shall observe on this occasion, that the Spanish monarch and his court did not act up to their professions with respect to me. They appeared to acknowledge my character in a free and spontaneous manner; while from the reception I experienced for the space of four months, it was easy to perceive how repugnant to their feelings this acknowledgment was. In this ambiguous situation was I placed when I was surprised at St. Ildefonso by the news of the event of the 10th of August, on the eve of the festival of St. Louis, the Queen's gala day. I did not, however, refrain from attending at court. It was a courageous step on my part; the last I attempted. After that day I conceived it my duty to keep away, as after the downfall of the King I was no longer regarded as his representative. This circumstance, however, did not prevent my holding communication with the Count d'Aranda, and his successor the Duke de la Alcadia, as frequently as the interests of my country made it expedient.

In the mean time Spain, notwithstanding the pacific disposition which she pretended, and authorized me to give assurance of to the new French government, was making preparations of an hostile appearance. I watched its motions narrowly, and required an explanation. More than once did the Spanish minister take umbrage at a foreign government intermeddling in its interior administration. However as peace was at that time desirable, and hoping above all things to save Louis XVI., it was on the eve of engaging to remain neutral by a formal act. This act was even drawn up in my presence, and sent to Paris, whence it was returned to Madrid with some trifling alterations. Spain looked upon them as of sufficient weight to require fresh explanations.

In the interim the trial of the King was carrying on. Charles IV. used the most affecting but a tardy intercession in favour of his relation. The death of Louis was decided upon. He lost his head. My negotiation was at an end. In vain did I attempt to renew it. The prime minister, who was then with the court at Aranjuez, gave me to understand that for the instant any interview with me would be ill-timed. I insisted stating that I could have no business any longer in Spain, if I ceased to possess the facility of discussing affairs relative to my country, and demanded my passport. It was sent to me; and I left Madrid the 23d February 1793. As I was then unacquainted with Catalonia, which at the eve of the war with which we were threatened must necessarily be the theatre of the military preparations of Spain, I resolved on taking the route of Valencia and Barcelona, re-entering France by the way of Perpignan.

The first day I reached Aranjuez, where the court was at the time. I saw for an instant some friends which I yet preserved among the Spaniards, and who lamented with me the disastrous rupture of which my departure was the signal, foreboding with me at the same time that it would not be of long duration. I continued my journey, and slept at Ocana.

I entered La Mancha, the western part of which I was about to travel through, in order to gain the kingdom of Valencia. I had already made this journey in 1783, in the finest season of the year, at a period when my mind, the political horizon, and every around me partook more of serenity.

There are three roads from Aranjuez to Valencia; one, which is the post road passes by *Tarançon, Requena*, &c. This is that I travelled over in 1783.

Another, which I made choice of on my return, goes through San Felipe, Almanza, and Albaceti.

The third is the beautiful new road which carries you very commodiously from Madrid to Valencia.

I shall

I shall travel rapidly over these three roads. If you take the post road, you pass along *La Calle de la Reyna* for the space of half a league, then turn to the left, and bid adieu to shade and verdure.

During the first seven leagues you frequently approach the Tagus, no longer now the Tagus of Aranjuez, nor even of Toledo : you at length arrive at Fuenteduennas, a large village, in every part of which poverty and idleness are but too conspicuous.

A little beyond *Tarancon*, a large town, three leagues farther on, you discover the castle of *Ucles*, which after having been a fortress, no doubt built to prevent the incursions of the Moors, as its form sufficiently indicates, is become the peaceful abode of a religious society.

I pass rapidly over *Saylices*, *Villar del Sax*, and *Olivarez*, the situation of which, in the centre of a chain of hills, is highly picturesque.

Bonache, three leagues farther on ; thence to the borough of Campillo, the distance is five leagues, by a road full of stones, and a country which presents on every side sterility and depopulation. From Campillo to *Villargorda* you travel over the summit of mountains, by paths where two men would be unable to go abreast without danger of tumbling over into deep vallies. After having thus stumbled for some hours over rocky ground, across a wild and uncultivated country, you descend for the space of a league by a very winding road, and discover the Rio Cabriel, serpentine in a narrow valley covered with verdure, which it leaves, after having passed under a handsome bridge of one arch, called *El puente de Pajazo*. Near this bridge is a vast cavern, formed by nature, the retreat of smugglers and robbers which infest this unfortunate country.

After climbing again a steep hill, you reach the post house of Villargorda.

The mountains you have thus travelled over are called *Las Contreras*, the dread of travellers. The four succeeding leagues conduct you to Requena, across a plain which affords the first specimen of Valencia. The neighbouring stream, from which cuts are made to irrigate the plain, concur with the excellence of the soil, and the mildness of the climate, to make them fruitful in corn, vines, flax, pastures, and above all mulberry trees.

Beyond Requena is another chain of mountains, called *Las Cabrillas*. This road likewise is very rugged, but not of long duration, and at the end of three leagues you reach a Venta, which stands entirely by itself, called *La Venta del Relator*.

As soon as you have passed through Requena you enter the kingdom of Valencia, and are able to distinguish this from the industry and activity of its inhabitants, who make every advantage of the slender portion of soil they find on the back of their rocks.

But the environs of Cheva in particular realize the captivating pictures one takes a pleasure in sketching of this country. It affords an inexpressible delight after crossing the dry and barren plains of Castile, where trees are so uncommon, the grass without verdure, and the lands without inclosures, to find one's self between live hedges, formed by aloe trees, and serving as fences to orchards, pastures, and plantations of olives and mulberries.

This lovely scene is continued for half a league beyond Cheva. The land afterwards is of a poorer nature. Soon however the delightful eye surveys Valencia and the Mediterranean. On arriving at *Quartos*, about a league from Valencia, you meet with nothing but a continuation of orchards, gardens, and little country-houses, the simplicity of which affords a charming contrast to the luxury of nature. Half a league farther you pass through a second village, which stretches to the suburbs of Valencia.

The road which I took on my return in 1783 is longer by seven leagues than the first. It is not the post road, but yet it may be travelled over either in *coches de colle-*

ras, or much more œconomically in little cabriolets, called *Calezin*, much in vogue in this country, as well in the neighbourhood of Valencia as in the town itself.

On this second road you travel for six leagues over the richest country imaginable, by one of the best roads in Spain. Plots of mulberry trees intermixed with fields of rice continue all the way to San-Felipe. This town, formerly called *Xativa*, is built on the sloping side of a mountain, protected by two castles above it, and forms a kind of amphitheatre, thus explaining the long resistance it was able to make to Philip V., and for which it was punished by losing its name and its privileges. It has a church of handsome appearance, and several fountains which would not disgrace the largest towns.

On leaving San-Felipe, for three leagues the road lays between uncultivated and unpeopled hills, when you arrive at the *Venta del Puerto*; you are then upon the confines of the kingdom of Murcia, so much extolled for its fertility and excellent cultivation. This praise, however, is well merited only in the plain wherein its capital is situated, upon the banks of the Sigura, known by the name of *La Vega de Murcia*.

From *La Venta del Puerto* the view is confined on all sides to barren mountains, crossed by the road to Almanza. You discover this town at the extremity of a vast plain, famous for the victory which insured the throne to Philip V. This plain is well cultivated, and its fertility seems to increase as you approach Almanza. There is a tradition at Almanza, that the years immediately succeeding the battle, which has received its name from that place, were extremely productive; sad compensation for the destruction that victory occasioned to the human species! About the distance of a cannon shot on this side Almanza is a socle, which bears upon its four sides Latin and Spanish inscriptions, relative to the victory gained by Marshal Berwick. Above the socle rises a little pyramid, upon which was formerly an armed lion. The people of Valencia irritated by this image, which seemed to threaten them, beat down the lion with stones, when the small statue the pyramid now bears was substituted in its stead. To eternise a victory like that of Almanza, one would look for a more magnificent monument.

The industry of Almanza is confined to the weavers, who indeed are numerous: the hemp grown in the neighbourhood is not near sufficient for their employment. To the north of the village are the ruins of an old inhabited castle, and to the west, at about a quarter of a league from Almanza, is a mountain in shape of a trapezium, the outlines of which are so symmetrical, that at a distance the traveller is inclined to take it for an enormous intrenchment.

On leaving Almanza before the great road was finished, the traveller had to cross a stony country, wild, and covered with heath; another no very pleasing specimen of the kingdom of Murcia. You next perceive Chinchilla on the left, a town on a barren eminence, but which commands the spacious and fertile plains of La Mancha. One is then but a few leagues from *Hellin*, a place remarkable for being the native place of Macanaz and Count Florida Blanca, who was exiled thither after his disgrace.

You then are near *Albacete*, the country about which is improved by irrigation. This large town laying between Valencia and Alicante, is a place of rendezvous for a great number of merchants. Its industry is exercised on iron and steel brought thither from Alicante, but in a somewhat rude manner. Still its manufactures are sufficient to banish idleness and poverty from the city.

From *Albacete* the road passes through three extensive villages of La Mancha, *La Gineta*, *La Koa*, and *Minalla*; and you travel nine leagues across a vast plain which is not well cultivated, producing only a little corn and some saffron.

Next succeeds *El Provenzio*, rather a considerable town; the cultivation of saffron is the principal employment of its inhabitants.

Beyond you pass over well cultivated lands and through two villages, *Pedronera*, in which there is a manufactory of saltpetre, and *La Mota*, pleasantly situated. Hence the eye surveys the immense plains formerly the theatre of the exploits of Don Quixote. Shortly after you find yourself within a league of El Toboso, the birth place of Dulcinea; and discover the steeple of El Toboso, the little wood in which Don Quixote waited for the tender interview procured him by his faithful squire, and the house in which Dulcinea received his amorous message.

At length you pass through *Quintanar*, and arrive at Corral, a large village, within nine leagues of Aranjuez.

In 1783 the new road proceeded no further. In 1793 I found it advanced to the confines of the kingdom of Valencia, and with the exception of about twelve leagues the road from Madrid to Valencia was one of the finest in Europe. The new road takes a different direction in many points from the old one. It leaves San Felipe a league to the left. It does not cross the vast plain of Almanza, nor near the pillar which commemorates the battle. When you have attained the summit of the plain, you keep for some time along the skirts of it, and afterwards descend into the kingdom of Valencia, which announces itself by its temperature and flourishing state of cultivation. When I entered this kingdom in my last journey, (the 27th February,) already were the almond trees in bloom, spring shewed itself in myriads of opening flowers; our road ran between plantations of olive trees and carobas, favoured by the shade of which the earth already gave symptoms of its fertility. This early, cheerful robe of nature appeared the more striking, from our having previously travelled over La Mancha, still in many parts covered with snow.

We noticed, however, very few dwellings by the way. A *Venta*, situated midway on the slope of a hill, commands a view over a fertile valley. Thence to the *Venta del Rey*, a large new inn, is four leagues; at this place we were agreeably surprised at finding decent furniture, and a chimney place.

Every where throughout this district the eye is cheered with the appearance of comfort. The new road is constructed with the nicest attention, nay even with magnificence.

At intervals you meet with handsome new built houses, fine bridges over even the smallest rivulets, superb raised causeways cased with masonry, numerous parapets for the safety of travellers, the road at times artfully winding round the sides of hills, and stones to distinguish the distance at every league. The fifty-fifth is at the entrance of a long village, at the end of which is built the *Venta del Rey*. Before you reach it you pass through Lanera, another village, consisting of a group of houses mostly new built, along the side of the road. High roads, particularly in fine countries, are like rivers and streams; they invite population.

CHAP. XI.—*My arrival at Valencia, insurrection against the French.—Description of this city and its neighbourhood.—Rice grounds.—Barillas.—Oils.—Export aloes.*

WE arrived rather late at Valencia on the evening of the seventh day. The sixty-third column is opposite the first houses of the suburbs, where we deemed it expedient to pass the night; a measure of prudence recommended rather by the terror of the muleteer than any apprehension of our own. Valencia at that period was the theatre of a most violent insurrection, excited by royal and religious fanaticism against the French nation. Every thing that related to France, whether by name or origin, was exposed
to

to the fury of the populace. In order to repress this tumult, Don Vittoria Navia, who was governor in the kingdom of Valencia, had occasion for all his vigilance, and the whole of the trifling armed force left in his capital. On the night of our arrival the town was illuminated, and numerous patrols prevented disorder. The innocent and peaceable objects of this blind hatred, shut up within their asylums, were apprehensive of their being violated at every instant. Acquainted with some persons thus situated at Valencia, I sacrificed to their security the pleasure I should have had in seeing them; for which caution they were thankful.

For our part, keeping ourselves still and close shut up within our apartment, we enjoined silence to such of our people as might betray us by their speech, and particularly to our children, who might by their cries have pointed out to passers by the residence of a little French colony. Happily we maintained the most secure concealment, and before the appearance of aurora we quitted this dangerous place. The tumult, which had more than once been at its height, fortunately passed over without any of our countrymen losing their lives; however many of their houses were broke open, and some warehouses were plundered; the Valencians thus gratifying the secret malice which had long before been excited by the prosperity of the commerce and industry of the French; a malice more prevalent among the people of Valencia than the other cities of Spain, from the manufacturers of that city considering us as active and formidable rivals.

I shall not make my readers haste with so much speed through the kingdom of Valencia, nor quit its capital so abruptly as I was obliged to do in 1793. This country, one of the finest in Spain, perhaps the most agreeable of any in Europe, deserves a more ample detail.

Its capital, if not exactly a handsome city, is yet a very pleasant place to inhabit, particularly since a vigilant police has been established in it, occupied as well in adding to its embellishment as its safety. Although its streets be unpaved, they are very clean. The filth from which they are frequently cleansed serves to manure the vast orchard which surrounds it on every side. Idleness and wretchedness are banished from this city, every person being employed. In 1783 nearly four thousand looms were in use for making silks of different breadths, and occupied more than twenty thousand of its inhabitants, without reckoning the workmen in wood and in iron employed upon the construction and repair of so much machinery, those who separate or spin the silk, or those who dye it.

This prosperity has kept increasing since 1783, and I am assured that of late years Valencia kept eight thousand looms at work of every description. The government neglects no encouragement of this particular branch of industry which it can afford. During the war with France it exhibited several instances of this. The war rendered a resort to the *quintas* necessary upon two several occasions, but the court exempted all young men employed any way in silk manufactures; and this exception comprehended more than three thousand persons in the city of Valencia alone.

The manufacture of silk is not the only employment of the inhabitants of Valencia, they furnish a considerable quantity of hemp to the King's arsenals.

Their wines and brandies are also exported in great quantities to England, the island of Guernsey, Holland and to the North by way of Dunkirk, where the greatest part of the brandies of Valencia were mixed. Within a few years past they have found a new market in Spanish America; and they even ascend the Loire as far as Orleans. For our merchants willingly mix these brandies with ours, which are of a superior quality; and their wines with French wines, in order to give colour.

Rice is another source of riches for Valencia, but the culture of it lessens the salubrity of this happy climate; however, they possess a method of sheltering themselves from the malignant influence of the rice grounds. I have known of some who not going out to their work before the sun was risen to some height above the horizon, returning to their close shut homes in the evening, and refraining almost entirely from the use of water, lived with impunity in midst of their fields of rice; but the greater part pay for their vicinity to them by intermittent fevers. Notwithstanding this they are not the less attached to this branch of husbandry on account of its favouring their idleness, being at the same time productive. Rice is sown about the festival of St. John, and is gathered towards the close of September. The crops seldom fail, and is secure of a market. Is it wonderful that such a species of culture should have its partisans? It has so many that government has been obliged to frame very strict laws to prevent the increase of rice-grounds. They are met with in abundance along the coast, and particularly south of Valencia from *Gandia* to *Catarrajo*. In this part the predilection of the people for this culture is a mania which nothing can restrain. The administration divides the estates into different partitions or *cotos*, and designates such as within a limited space of time are allowed to be sown with rice; but the bounds specified are almost always exceeded. In vain does the captain-general repair to the spot, to watch over their adherence to the restrictions, his authority is frequently compromised, and his safety occasionally; so that the law is oftentimes eluded and with impunity. In consequence, of late years the crops of rice have been prodigious. They serve for the consumption of all Spain, if the south of Andalusia be excepted, where a preference is paid to the rice of Carolina.

Its numerous markets have greatly tended to encrease the price of rice at Valencia. The measure sold in 1785 at from 6 to 7 piastres has risen to 10 and 12; and the farmers of the country affirm, that Valencia receives not less than from 30 to 32 millions of rials (upwards of 350,000*l.*) for rice alone. There are two modes of cultivating this grain, it may either be planted or sown. The crop of that which is planted greatly surpasses that of what is sown, but requires an extra care, on which account it is almost every where sown. The ground is previously tilled but remains level, without any appearance of a furrow, and is inundated to the depth of somewhat more than a foot. Rice, at least that which is cultivated in the kingdom of Valencia, has the singularity, possibly peculiar to itself, of being constantly in the water even to the time of gathering inclusive. The rice-ground never has the water drained from it, except when it is weeded. When ripe the husbandmen proceed in the water up to their knees, followed by carts on which the sheaves of rice are laid; it is afterwards threshed in the same manner as other grain; that is to say, as in the kingdom of Valencia, so throughout almost all Spain, it is trodden out of the straw by horses and mules. After this operation the rice remains in its husk or *balle*. It is separated from this by passing through mills perfectly resembling flour mills excepting that the mill-stone is coated with cork. Rice however is sold indifferently before or after this last operation*.

Barilla is a production peculiar to the kingdoms of Valencia and Murcia. It is an essential ingredient in plate glass. The annual quantity gathered may amount to one hundred and fifty thousand hundred weight, which is divided between France, England, Genoa, and Venice.

* Rice grounds have to the present time continued to encrease. A law suit took place between their partisans, and the advocates for mulberry plantation, which was determined in favour of the former; the latter in consequence have abused their triumph to the injury of the healthiness of the air. Notwithstanding, the rice grounds do not yet extend beyond *Ria*; the rest of Valencia is free from this scourge.

Potash, in Spanish called *Sofa*, is a species of barilla employed in the soap manufactories of France and England. The kingdom of Valencia produces about twenty-five thousand quintals a year.

The *Agua azul*, is a third sort of barilla. About four thousand quintals of this are annually produced, most of which is sent to Marseilles.

Lastly, *Solicor*, a fourth kind, is produced without cultivation, and is employed in the glass manufactories of France, England, and Italy.

When the plant of these four sorts of barilla is well matured, it is left a day or two in heaps to dry; afterwards it is put into a hole without much pressure, three or four feet deep, then set on fire and turned over or stirred up with long poles: and in proportion as the first plants are consumed, others are thrown in. When they are all sufficiently burned, the hole is covered, and the barilla left to cool. It is too often adulterated by mixing with it bastard herbs produced in the same soil. The cinders that remain after this burning form lumps, which are the barilla in pieces as it is exported.

Oil is one of the most abundant productions of the kingdom of Valencia, but is not allowed to be exported except when the price is very low. It is reputed to have a disagreeable taste and smell, and generally speaking deserves the reproach. Its imperfection is attributed to different causes; 1st, to the custom of despoiling the olive trees of their fruit by bruising, instead of gathering it with caution; 2dly, to keeping the stone too long in the fruit; and 3dly, to the scarcity of oil mills, which occasions the olives to be left several months in heaps, in which they ferment and rot before the juice is expressed.

This third cause appeared to me to be the chief and the most active. It is one of the principal inconveniences attendant on signorial rights which continue yet oppressive to a great part of Spain. In the kingdom of Valencia in particular there are few noblemen without exclusive ovens, and mills, both for grain and for olives. Now this second species of mills are not sufficiently numerous by much, for the use of the proprietors of olive-grounds, who yet are not allowed to build any for themselves. The Valencians will consequently continue to have bad oils as long as they remain subject to this abominable slavery. Notwithstanding this disadvantage, with nice attention and care, some of its cultivators manage to produce oil, which even connoisseurs esteem but little inferior to those of Provence*.

The industry of the people of Valencia derives advantage from all the productions of their soil. The province contains a kind of earth of which they make squares, or tiles of coloured delph, called *Azulejos*, and which are manufactured at Valencia alone. They are used to pave apartments or cover ceilings; the most complicated subjects are painted upon them; such, for instance, as a marked ball, or a bull-fight.

Espart, although one of the vilest productions of the kingdom of Valencia, is of great use to the inhabitants; of this they make mats and cordage. Formerly great quantities of it were sent to the ports of France and the Mediterranean. This exportation was prohibited in 1783. The measure excited disapprobation, and was much murmured at. It was pretended that all the espart produced could not be consumed in the country. The court of Spain therefore permitted certain individuals to export considerable quantities; and the ports of Toulon and Marseilles, where it is of great use in the dockyards and arsenals, have reaped advantage from the permission.

* Their method of making oil is lately a little improved, especially in the neighbourhood of Alicant. At *Elches*, for example, and on the hills in the neighbourhood of this little town, a pure oil is made, as clear as water; and inferior in no respect whatever to the finest Provence oils.

The Valencians make use even of the *aloe*, a parasite plant seemingly destined only to decorate and enclose landed possessions. They draw from its long and thick leaves, a kind of thread, of which they make reins.

Besides these they export wool of a second quality, the produce of their sheep. It is in the neighbourhood of *Gandia* in particular that the flocks are fed from which it is shorn, and from the port of this city it is shipped for Marseilles, with numerous cargos of dry fruit, aniseed, and cochineal, the produce of the country.

To conclude, in their abundant crops of oranges, lemons, grapes, and figs, but particularly in their wines and brandies, they possess an immense fund of articles for exportation.

Industry in Valencia, as well as in the provinces of the crown of Castile, is not burthened with the scourge of royal impositions. All those taxes which pass under the denomination of *provincial rents* are there unknown. For them the *Equivalente* is substituted, which is a direct tax on all possessions of every description. They are valued in every district with a tolerable precision by the office for taxes, (*La Contadaria de mopios, y arbitrios*;) and this tax, which is moderate, is collected by a person appointed by the *alcalde*. On the other hand, the signorial rights, and the feudal claims to which they are subject, which are taken in kind from the produce of every crop, and which amount to a seventh, a sixth, and in some places a fourth part, are a tax upon them grievous indeed.

CHAP. XII.—*Buildings of Valencia.—Canals.—Irrigation.—Its new port.—Silks.—Progress of its manufactories.*

But let us enter the city of Valencia, and examine the objects it encloses worthy of remark.

Its exchange is a large building where the merchants and manufacturers assemble, and where the principal object of their discourse and dealings is that most valuable production of their country, silk.

Arts and literature are rarely much cultivated in manufacturing or commercial towns. However at Valencia there is a public library belonging to the archbishop, which even contains a collection of statues and antique busts.

The last archbishop of Valencia was a man of austere manners, which rendered him adverse to profane enjoyments. His scruples have lessened the value of this collection, by occasioning the mutilation of some of the statues of which it is composed. The play-house at Saragossa was struck with lightning, he thereupon obtained an order for that of Valencia to be closed, and houses to be built on its site.

Since his death, the friends of the drama are preparing a new theatre under the direction of Fontana; a skilful architect invited some years ago to Madrid to decorate the palace*.

El Real, the residence of the captain-general, is more remarkable for its charming situation than for its form. It is an ancient and vast edifice, placed in a most conspicuous quarter. Between the walls of the town and the suburbs, on this side, is a long esplanade, in which five bridges over the Guadalaviar terminate. Were this river full, it would be difficult to imagine a more delightful prospect; but it arrives at Valencia exhausted by the abundant tributes it has afforded in its course: for this is the river

* The building is completed, but Valencia is still without plays.

which supplies the chief means for the irrigation of this fertile country. These irrigations are made under regulations which cannot be too much admired. Different cuts from this river conduct its water into numerous canals for the purpose of watering the land, (*azequias*;) and diffuse its benefits over every estate. Each proprietor knows the hour and day allotted for his receiving this salutary visit. He then opens his sluices and introduces the water into the small canals which surround his territory, and which he is most expressly obliged to cleanse twice in a year. There are four *azequias* run from the Guadalaviar at different elevations. The chief is that which begins at Gestalgar (called *Moncada*) a borough four leagues from Valencia, where an office for the management of this *azequia* is kept; for in this kingdom irrigation forms an essential article of the general police; and, in the capital, there is a tribunal exclusively charged with looking to the execution of the laws which relate to it, and of punishing delinquents. Its sittings are held in the vestibule of the cathedral; and, notwithstanding the almost rustic simplicity of its members, who are wholly farmers, it knows full well how to make itself respected.

This general and periodical watering has undoubtedly great advantages. It maintains verdure and fertility. It multiplies productions to such a degree as to maintain the earth constantly covered with fruits. The leaves of the mulberry-trees are three times gathered; the meadows of trefoil and luzerne are mown eight, nay ten times a year; and the earth, not satisfied with bearing forests of olive and mulberry-trees, produces beneath their shade, strawberries, grain, and vegetables. But this watering has also a great inconvenience. This artificial fertility does not bestow on the plants that substance which they receive from nature alone; for which reason aliment in this country is much less nourishing than in Castile. This abundance of water, which changes the nature of the plants, appears likewise to have an effect upon the animal kingdom. Malignity has assumed still more with respect to the human species, nor has it spared the fair; it has invented the following verses, which I am far from adopting, and which with difficulty I allow myself to transcribe:

*En Valencia la carne es hierba, la hierba agua,
Los hombres mugeres, y las mugeres nada* *.

The finest walks of Valencia, the *Alameda*, *Monte Olivete*, and the road of *Grao*, a little village half a league from Valencia, and by the sea-side, are upon the banks of the Guadalaviar.

For a long time Valencia has had no other harbour than the bad road opposite to Grao. Small ships scarcely approached nearer than half a league to the coast, and those of three masts were seldom seen there. Cargoes were put into barks, which were brought almost to the shore, and afterwards drawn by oxen to the beach. Valencia only wanted a port to make it one of the most flourishing towns in Spain. Within these eight or nine years, government has been occupied in procuring for it this advantage. An able engineer, a pupil of Don Thomas Munoz, was charged with this undertaking. Every thing contributed to his success; the special protection of the captain-general of the province, Don Louis de Urbina, the voluntary subscriptions of the merchants and manufacturers, and an advance on the part of the bank of St. Charles, of 5,000,000 of rials. The new port will have eighteen feet of water, and will even be able to receive frigates. It has been made, not by lowering the beach, but by elevating by arti-

* In Valencia meat is herbs, herbs water, men women, and women nothing.

ficial means the water of the sea, means similar to those employed in creating a port at Cherbourg *.

Thus the coast of Valencia will no longer throughout almost its whole extent remain as it was wont the dread of mariners; for before this modern creation, it did not possess one single good port. From the Alfagues, at the mouth of the Ebro, to Carthagená, there were but the roads of Alicant and Santa Pola, the bottom of which could be depended upon, or which afforded the least shelter in case of distress.

Under the administration of M. de Aranda, an establishment was attempted, which did not realize the expectations conceived. A great number of Spanish slaves languished in slavery under the Algerines in the island of Tabarca; Charles III. redeemed them, and afforded them an asylum south of Alicant, in a small desert island, named from its appropriation *Nueva Tabarca*. The attempt was laudable; it turned out abortive. Nature seems to have condemned this island to continue a desert, by refusing it wood, stone, earth, and water.

A different destiny awaits the new port of the *Grao*. It has a prospect of great prosperity, and will no doubt much injure the port of Alicant. Previous even to its being thought of, nothing could be more cheerful than the road from Valencia to the *Grao*; yet this small village was only peopled with fishermen; and the neighbouring shore was covered with wretched cabins. A fire having destroyed a number of them, they were replaced by pretty uniform buildings, which the proprietors were obliged to construct upon a particular plan: hence shortly will result a new town, which will not add a little to the embellishments of the neighbourhood of Valencia.

In order to be delighted with a view of Valencia and its territory, you should see it from the summit of the tower near the cathedral called the *Miquelet*. Hence the city appears to be built in the middle of an immense orchard, interspersed with numerous cottages, and the Guadalaviar is seen training its diminished tide towards the sea. Hence you distinguish the *Albufera*, a lake which runs by a very narrow channel into the Mediterranean; a lake which upon a map, or even at the distance of a few leagues, might be taken for a gulph. This lake abounds in water-fowl, the shooting of which is a most intoxicating amusement for the Valencians. They especially follow it up twice in the course of November. At these times the lake is covered with moor-hens, teal, and wild ducks. The sportsmen in boats drive the flocks before them, and oblige them to take shelter among the flags; at length, too closely pressed, they fly away in clouds, and then it is that they are killed at pleasure. The *Albufera* belongs to the King, who farms it out at 12,000 piastres. The farmer sells his permission to shoot upon it. This is a sport for those fond of shooting less fatiguing, and more productive than any other.

Strangers are shewn the cathedral of Valencia. It is an edifice rather elegant than magnificent, the walls of which are cased with stucco in pannels with gold borders. It contains, among other good paintings, some productions of *Joanes*, one of the best Spanish painters of the second class. The *Temple* also is highly extolled, it is a modern church built in a simple yet noble style; and the college of the patriarch, the church of which, blackened with smoke, possesses a relic which is shewn with much ceremony to those who would see it, and those who would not.

* The works of this port have been continually carried on, but the success attendant upon them does not justify the original expectations. A duty had been laid upon silk, the produce of which is appropriated to the undertaking. Different other funds are assigned, but winter destroys the prospects of the summer. The winds continually bring back shoals of sand to the entrance of the port; and it is much to be apprehended, that all these different expences will be a dead loss.

Other churches as well possess paintings by *Joanes*, *Rivalte*, and *Orente*, the three painters of Valencia who enjoy the highest repute.

What however chiefly give celebrity to the city and kingdom of Valencia are its manufactures. We shall say but little of that of its cloths, although it contributes materially towards the prosperity of a part of the kingdom, that which lies in the mountains towards the west. There are, as it were hidden, the manufactories of *Enguerra*, *Onteniente*, *Concenteyna*, and particularly that of *Alcoy*. They work up most of the wool of the country, which, notwithstanding it be of an inferior quality, makes very good common cloths, and is much in demand for the manufactories of Languedoc. But silk is for the inhabitants of this kingdom a matter of far different importance. Twenty years back the produce greatly exceeded their means of converting it into manufactures*; and then the motive of government for preventing its exportation was inconceivable. Now that the number of looms is nearly doubled, the prohibition has a reasonable motive. The inhabitants are even obliged to import silk continually from Italy, and sometimes from France, as was the case after the bad crop of 1784; and as has been the case when our manufacturers have been deficient of hands. However, a part of the silk of Valencia finds its way out of the kingdom in spite of the vigilance of administration. Its emission from that kingdom to the interior of Spain is not forbidden. There passes into Andalusia a much more considerable quantity than its looms can employ; and it is well known, that some descends the Guadalquivir, which is embarked for England.

The progress of the manufactories has greatly encouraged of late years the planting of mulberry-trees. Every where are they planted, and every where do they succeed. A few years ago there yet remained between Valencia and Murviedro a large track of poor and barren land, called *El Arenal*; at present it is covered with mulberry-trees. A planter there was mentioned to me, who gathers annually as much as twenty pounds weight of silk-worm eggs, and possesses a sufficiency of mulberry-trees to furnish them food without necessity of purchasing leaves; and it is common for individuals to possess five, six, and seven pounds of eggs. It may not be improper to observe, that all these mulberries are of the white kind (*moreras*); for, in some of the provinces of Spain, the kingdom of Grenada for example, they are black (*morales*). The leaves of the latter yield a silk but little inferior to that from the white mulberries.

The leaves of the former are sold by *cargas*, each carga being equivalent to two hundred and seventy pounds French. They are gathered once, twice, and at most three times in a year; but it seldom happens that the last crop is so abundant, or of equal quality with the first. Beneath so auspicious a climate, the leaf of the mulberry-tree may be gathered through the greater part of the year, but the leaves are plucked only as they are wanted to supply the silk-worms. The number of these leafless trunks, which increases as the season advances, tend greatly to lessen the beauty of these plains, so green and so productive.

The silk of Valencia is comparable for fineness with the best produced in Europe; but there is a defect in the spinning: many thousand hands are employed who do not all spin equally well. Hence an inequality in the tissue. Hence when we import it, it is never used for fine works.

It is well known, that the beauty of silks depends much on the manner in which the silk is wound from the cocoon. This first spinning is effected in three different manners, according to the reels employed. That which has long been and continues to be practised in Spain has this defect; the small threads from six, seven, or eight balls,

* It is calculated, that the looms of Valencia work up a million lbs. of silk.

which are stripped at a time, unite to form one thread on the spindle, without its being previously rubbed against another ; so that the thread of silk thus formed is floppy and easily breaks. The second mode of winding is that used by the Piedmontese ; it consists in causing each thread of silk to be united with another, and not to be separated until they have first twisted four or five times round the other. The third manner is that of *Vaucanson*, and is an improvement on the last. In the reel which he invented, the two threads of silk, after their first twisting, unite a second time for the same purpose. This operation is called the *double croisade*.

If these threads thus wound on the spindles be designed for the woof, they are set in a machine of several stories, where they are separately twisted. Thence they are removed to another machine where they are twisted together ; after which they are ready for the loom. The threads designed for the warp are twisted only at the instant of re-union.

But before the threads are twisted two together, they undergo the operation of *la breve*, which consists in stretching them over a shallow boiler containing viscous matter, in a state of ebullition, the exhalations from which fit them for uniting one to the other. They are afterwards carried to the machine where they are twisted. *Organzine* is the silk in the state it leaves this machine. It is only in this shape that it is permitted to be exported from Piedmont, where the operation of twisting was better performed (before the method of Vaucanson was perfected) than in any other country. The method of that skilful machinist, which embraces all the operations relative to the manufacture of silk stuffs, is exclusively practised by the manufacturers of Lyons ; but the silk of this country alone can be used with the reels for the *double croisade*, which go by his name ; for foreign silk, a greater part of which is used in these manufactories, must be organized before it is exported.

For a long time machines to save labour, have been known in Valencia as well as at *Talavera de la Reyna*. In the latter town I noticed one single wheel with teeth, which set in motion a thousand of those little spindles on which the twisted threads of silk are wound. The machinery of Valencia is on a smaller scale than at Talavera, for the former place does not like the latter contain a whole royal manufactory comprized in one enclosure. Each manufacturer here meets in dispersed quarters with the machines and hands requisite.

As to spinning, the Spaniards still adhere to their defective method with an obstinacy, which the government has latterly thought it right to oppose. In 1781 it caused a French merchant, established at Madrid, to enter into an engagement, to supply first the manufactories of Murcia and Valencia, and in succession such others as might desire them with reels after the plan of Vaucanson. But Spanish idleness rejected the adopting of a silk, which twisted in this manner is closer and more fine, and requires greater nicety in weaving, without obtaining an augmentation of price, adequate to the extra labour. In consequence French hands were employed in the first experiments of this description.

La Payessé, an intelligent manufacturer, established a manufactory on a large scale at *Milanesa*, near Valencia, wherein silk was spun, wound, and organized after the manner of Vaucanson ; but this silk being dearer by from 50 to 60 rials the pound than that prepared after the Spanish mode, it was less in demand, so that this estimable citizen was a loser by his experiment. Nevertheless he was not disheartened. He called theory to the assistance of practice, and published a treatise *on the Art of spinning, winding, doubling, and twisting, after the Manner of Vaucanson*. He even offered to instruct the proprietors of silk-worms, and direct them in their operations. But it is greatly to be apprehended

apprehended that these attempts will be abortive as long as all the implements used in Spanish manufactories are in such a state of imperfection, as disgusts the intelligent observer, although it appear not to have sufficiently struck the government. It must, however, be allowed, that in Spain they give the appearance of mohair to their silk in Valencia in as excellent a manner as in any other part of Europe. The Valencians owe the perfection to which they have attained to *Don Manuel Fex*, a manufacturer full of zeal, who discovered this secret by stealth among the Levantines, in a voyage to Turkey for that express purpose.

But the other branches of the manufactories of Valencia have not of late years improved as might be expected; this is imputable to the regimen with respect to silks adopted by government, and the almost incurable predilection of the Valencians for their old customs.

The patriotic society of Valencia has however lately attempted to further the progress of industry *. None has more diligently or more successfully exerted itself in favour of useful establishments. This society encourages the planting of mulberry-trees, improvements in the preparation of silk, and adjudges prizes to the inventors of new machinery calculated to simplify the process of the arts. The patriotic societies of Spain are a modern institution not yet arrived at perfection, but which already shews and keeps up a public spirit. The French republic, when peace resumes its empire, will possibly find it advantageous to adopt similar institutions, for the purpose of repairing with promptitude the injuries sustained by industry from the Revolution.

Much has the commerce of Valencia suffered from the war between England and Spain. Its port has been almost entirely abandoned, and the productions of this beautiful country have experienced, as well in their price as in their sale, a material reduction. The price of the pound of silk, for example, has fallen from five to three piastres; which proves what we have previously observed, that in spite of prohibition during peace a great proportion of the silk of Valencia is exported.

CHAP. XIII.—*Environs of Valencia.—Benimamet.—Burjasot, the Chatreuses.—Murvudro, the ancient Saguntum.—Coast of the kingdom of Valencia.—Modern establishment of San Carlos.—Passage of the Ebro.*

DURING the fine season, which comprises in Valencia almost the whole of the year, the environs of the capital are delightful to behold. A number of pleasing rural habitations have a claim on the curiosity of the traveller. I particularly recommend to such the village of *Benimamet*, half a league distant from Valencia, and among its country-houses that especially occupied some years back by *Don Pedro Mayoral*, canon of the cathedral. It is on an eminence in the centre of a garden wherein orange and lemon trees embalm with their fragrance the purest atmosphere. The coolness of its alleys, the variety of views it commands, the fertility which surrounds it, combine to make it a delicious residence. There it is, nay in a hundred places in Valencia, you will find that the sensible and elegant Swede who filled the embassy to Paris †, erred not widely from the truth when he said, “In this happy country every thing is forgot, you cease to belong to any nation, to have any business, are no more a husband, a father, nor a friend; you feel yourself an insulated being intoxicated with the beauties of nature,

* Notwithstanding the recommendations and encouragement of this society, mulberry-trees have rather diminished than increased within these late years, on account of government not interfering sufficiently to prevent the augmentation of rice-grounds.

† The Count de Crutz.

“and relishing existence.” In the garden which brings to my remembrance this rhapsody, and which if it could be realized, would realize the statement I met some years ago from the good Canon Mayoral, with a reception which I shall never forget. The serenity which reigned about him seemed to dwell in his soul, and was painted in his features. Towards me he was prodigal of kindness, as nature had been to him of her gifts. He is no more. *Sit illi terra levis.*

A quarter of a league from Benimamet there is another village on higher ground, called Burjafot. Here, besides the tomb of Mademoiselle L'Advenant, a celebrated actress, the Le Couvreur of France, who, more fortunate than her, was allowed without obstruction an asylum under shelter of the altar, travellers are shewn, as one of the curiosities of the country, the *Sichas*, or *Silbos*, which are large cavities from 25 to 30 feet deep, dug in the form of immense jars, and cased with masonry. They are the work of the Moors, who used them as granaries, to which purpose they are applied by the Valencians.

Twenty other sites about Valencia exact the attention of the traveller. If desirous of seeing a fine convent of Franciscan monks, he may visit and admire that of San Miguel de los Reyes. He will have it proposed to him to walk to the three chartreuses, situated in the neighbourhood of Valencia, all of them in a delicious situation. One in particular, that of *Porta Celi*, deserves especial notice; every thing shews opulence, every thing tends there to maintain the quiet of the soul. Whatever aversion to monastic life a man may entertain, he cannot resist a sensation of esteem for those silent solitaries, not unmindful of the benefits which nature has spread around them, who tranquilly laborious, austere yet not uncivil, apparently do wrong to none except themselves. I visited some of their cells, the furniture of them was neatly trim and elegantly simple. I walked as well to their cemetery. Its boundaries are marked by palm-trees which shade the tombs beneath; beside them roses grow as if to prevent the mortal remains of humanity from infecting the air respired in this sacred asylum. I regretted that it was uncommon thus to represent death under less hideous forms, and banish those images which render it so terrible. Why, said I, why endeavour to strew with mournful objects, to surround with frightful precipices, this road which none can shun? Why not rather assist mortality to tread this path, if not with cheerfulness, yet with serenity? Away then from the bed of death, away from the bier with objects exciting gloom, or what may alarm those who survive. Let us enjoy free from excess, and consequently from remorse, the blessings the earth supplies; and when the organized dust which the breath of life animates for a few seconds, be required again by our common mother, may it serve to make fruitful her entrails, and if possible adorn her face.

But let us leave Valencia and its charming environs, to resume the road to Barcelona.

The first remarkable place at which the traveller arrives beyond Valencia is the ancient Saguntum, now called Murviedro. The castles by which it is commanded are discerned at two leagues distance. At first you are induced to conceive them the remains of the ramparts from which the Saguntines so long repelled the Carthaginian hero, but afterwards learn that these castles were the work of the Moors. They built upon the heights on which these castles are situated seven fortresses, that communicate with each other by subterraneous passages, some of which are still almost entire. It appears that Saguntum was built half way up the eminence, and in particular extended on the other side into the plain approaching the sea, far beyond the site of Murviedro, since Livy says it was not more than a thousand paces from it; whereas the present confines of Murviedro are a league from the sea.

Murviedro still abounds in stones with Phœnician or Latin inscriptions. The latter are numerous in the walls of some of the streets ; and there are five of them, remarkably well preserved, in the walls of a church. It is likely that such as are found on the side of the mountain, or even higher, have been carried thither by the Moors, in common with other stones for building. Thus, in the walls of their ancient fortresses, we find a statue of white marble without a head, and some stones with inscriptions placed in an inverted position.

The monuments, the remains of which are still in preservation at Murviedro, date their construction from the period that the Romans, after the brave defence and destruction of their town, rebuilt it, made it a *municipal* city, and one of the most superb cities to be found out of Italy. They had among others a temple dedicated to Bacchus, the wreck of which is yet visible, on the left near the entrance into Murviedro ; its pavement in mosaic, which was suffered to fall to decay through neglect, has been taken up and transported to the library of the archbishop.

The foundation of the ancient Circus of Saguntum is still discoverable, upon which walls, serving as an inclosure to a long continuation of orchards, have been built. This Circus, as it is easy to perceive, was adjoining to a small river, which was the chord of the segment formed by the Circus. The bed only of the river now remains. It cannot be doubted but that, when the mock sea fights, called *Naumachia*, were here exhibited, this bed was filled by the tribute of neighbouring canals which still exist.

But of all that remains of old Saguntum, nothing is in so good preservation as the theatre. In it you may plainly distinguish the different seats which the citizens occupied, each class according to its rank. At the bottom, in the place of our orchestra, are the seats for the magistrates ; next, those for the equestrian order ; and last of all, those for the people. The two door ways at which the magistrates entered still remain ; also two higher up, exclusively reserved for the equestrian order ; and almost at the top of the amphitheatre, which continues without interruption from top to bottom, the two galleries by which the multitude withdrew, and for that reason called by the ancients *vomitoria* ; lastly, the four or five highest rows of seats which were destined to lictors and courtisans, are yet entire, as well as the semicircular roof of the whole edifice. On the outside there yet remain the projecting stones, wherein the bars were inserted to which was fastened the great horizontal covering which sheltered the whole assembly from the rain and sun ; for the ancients in constructing their theatres foresaw and provided against every thing. Every one had a seat, and all were secure from the inclemency of the weather. Every means was taken to prevent disorder. In a spot still discernible the judges were seated. If any turbulent spectator drew upon himself their animadversion, they had lictors at hand to seize him ; who conducted him into a private chamber, between which and the judges seats there was a communication by a private staircase ; he was there interrogated, and if found culpable, was confined in a prison, under the chamber in which he was interrogated, till the conclusion of the representation.

Dean Marti, who has given a detailed account of the ancient Saguntum, estimates it capable of containing nine thousand persons ; and this appeared to me credible. Many wonder how the actors should, in the open air, have been able to make themselves heard by so numerous an audience with their natural voice. However, in 1783, I convinced myself it was possible by placing a boy where the stage formerly was, whilst I was at the top of the amphitheatre, and making him repeat phrases, of which I lost not a word.

No traces of the stage remain. Beyond the amphitheatre, of which some of the benches towards the centre are sensibly decayed, the vestiges of the place occupied by the actors are with difficulty distinguished ; it offers nothing but a few trees and ruin-
ated

ated buildings. The front of the ancient stage has been converted into an alley of mulberry trees, where rope-makers have established their moving trade.

No care was taken to preserve this valuable monument. A goaler had his habitation there, which he extended or changed as convenient. A few poor families build within it wretched huts, of which the Romans, almost twenty centuries before, prepared the walls and ceiling. Never was time better assisted in its ravages. The sacrilege would have drawn tears from Caylus or Winkelmann. At length, in 1787, they began to be repaired. The Corregidor of Murviedro, raising from the dead as it were this corpse of a Roman theatre, relieved it from degradation, and restored it for some hours to its ancient use, by causing a Spanish piece to be represented within its walls.

One of the late captains-general of the kingdom of Valencia, Don Louis de Urbina, improved upon this solemn reparation. Under his auspices it was attempted to make the theatre of Saguntum fit for its ancient destination. A Valencian poet, Don Francisco Bamahonda, composed a tragedy, the subject of which was worthy of the country and worthy of the theatre; it was the siege of Saguntum itself, it was that noble self-devotion which covered with ashes, blood and glory, that land dear to honour, and dear to liberty; but it appears this fine project has vanished into air, at least it is said there is no longer an intention of reviving the theatre of Saguntum, and it is left as before to the observations of antiquaries*.

From the place which it occupies you ascend with difficulty to the ancient fortresses of the Moors which crown the enclosure. Upon the platform on the summit is an humble hermitage, the inhabitant of which enjoys one of the finest prospects in Spain. It commands the rich plain which separates Murviedro from Valencia. Thence you see the steeples of this capital rising through the orchards by which it is surrounded. Before, you behold in perspective a considerable part of the Mediterranean, the shores of which are covered with vineyards, olive and mulberry trees, from Murviedro to the edges of its banks: on the left a chain of hills bounds the horizon, and insensibly diminishes to a level with the sea, leaving no interval but that formed by the road to Barcelona.

The wine in the environs of Murviedro is strong and well tasted; but most of it is converted into brandy, which is put into barrels and conveyed to a small port about a league from Murviedro, whence they are shipped for the North, for France, or for Spanish America, which, since trade has been thrown open, afford a considerable market for the brandies of the coast of Valencia.

Beyond Murviedro, vast fields shaded by olive trees and carobs, rich vineyards, and pictures of the most chearful fertility accompany you, as you travel over a superb road, the whole of the way from that town to *Castillon de la Plana*, a borough seven leagues from Valencia.

At a great league from Murviedro we stopped awhile at Almenara, a village agreeably situated on an eminence. Here I found five curates transported from the Roussillon, to whom government had granted an asylum in a convent of Dominicans. It was consequent that many of these exiles would seek refuge in preference in a neighbouring state of the catholic persuasion; and on the way I scarcely passed a league without meeting with some. At first they took up their residence in the capital, and most considerable towns of the peninsula, hoping to find in these places greater resources than elsewhere. They excited in the beginning a double interest, as objects of distress, and persecuted martyrs of religion. The faithful, in their blind veneration for these victims, went so far as to prefer them to their own priests, the more so, from wretchedness obliging those

* It was Townshend, the English traveller, who first drew a momentary attention to this theatre.

to cheapen, if I may use the expression, the spiritual treasures they dispensed. The interests of mortality soon however spake louder than the interests of heaven. The indigenous priests took umbrage at the prosperity of the intruders; and whether government paid any respect to their representations; whether they conceived it dangerous to suffer those delicate questions, which relate to the rights of kings and subjects, to be discussed in places where numbers were collected together, it dispersed the French ecclesiastics over a larger surface. It ordered some to the convents of the interior, and even fixed the number that each was allowed to receive.

To return to Almenara. From this pretty borough to Castellon the country is rather less fertile, although every where well peopled, and enlivened by industry. We passed through two large towns, *Nulis* and *Villareal*; after which we crossed (a thing sufficiently common in Spain) by a very handsome bridge, a large river which was nearly dry.

After you leave Castellon fine roads are no further continued, and nothing can be more sudden than the transition. Descending by an extremely rugged road, you approach the sea, which is kept in sight for the space of a league. You afterwards have to encounter a very steep hill, and are terribly jolted until you arrive at the castle of *Oropesa*, situated on an eminence near the margin of the Mediterranean. Thence, as far as *La Venta de Senienta*, the road is tolerably smooth. After passing Castellon, the soil is perceptibly less rich. The whole country you travel over in surmounting the hill of *Oropesa* is unpeopled, and presents the most hideous aspect; beyond it, the country is a little cultivated, but stony roads still continue as far as *Alcala de Sibert*, a kind of town half way up a hill, in a country not the most cheerful or productive.

At length you re-approach the sea, and the last ports of the coasts of Valencia.

The first that you meet with, after having wound about with difficulty amidst the mountains, is *Benicarlo*, inhabited principally by fishermen. Here begin the flat roofs, and jargon of Catalonia; this is a species of corrupt Spanish, which greatly resembles the patois of Roussillon, without a knowledge of which it would be difficult for a person to make himself understood in Catalonia.

At a great league from Benicarlo is another more important port, *Venaroz*, a large town of pretty good appearance, containing from eleven to twelve hundred houses. The environs of Benicarlo and *Venaroz* are planted with vines, the produce of which is converted into brandies, which are exported. *Venaroz* is not, properly speaking, a sea port. I found there, however, about fifty small vessels; these, instead of laying at anchor, were on the beach out of water. Many of these barks go coastwise as far as Cadiz and Marfeilles; some even venture to the Havannah.

At a league beyond *Venaroz* the fine road began again in 1793, with a small bridge newly constructed on the spot, which forms the limit of Catalonia and the kingdom of Valencia; and was continued three leagues to San Carlos, a new establishment which deserves detail.

San Carlos is directly on the sea shore. It is the capital of the establishment of the *Alfaques*, a name given to a sort of port formed by the mouth of the Ebro. The *Alfaques*, properly speaking, are a long tongue of land, narrow and semicircular, being a prolongation of the left bank of that river. San Carlos is situated opposite to this point of land; and this is the point of the coast which ships make for. It consists of two fine buildings placed along the road. A large oblong square separates them from another row of symmetrical buildings, one of which may rank among the best taverns in Spain. It is extremely clean, and tolerably well furnished; it has also a good larder: but with reason we may again ask the Spaniards why, like so many others, is this hotel kept by a

Milanese? The Mediterranean washes its walls. When I passed it in 1793 they were still at work on the new port. The object of this establishment begun in 1780 was to people a peninsula, up to that time a waste, and to render the mouth of the Ebro of service to navigation and trade. In this narrow peninsula there was more than a thousand acres to distribute, but few colonists up to that period had gone thither to establish themselves, on account of the land belonging to individuals of Amposta, and some neighbouring villages for the most part, who go thither to cultivate it, without changing their abode. The project of government was to dig a large port on this spot, and so facilitate the passage from the Ebro, which is much incumbered below Amposta. For this purpose a canal was begun at this latter place which was to end at San Carlos, and on which canal, as early as 1793, all the materials necessary for this establishment were conveyed in flat bottomed boats. By deepening this canal, it will be made navigable from Amposta to San Carlos; thereby rendering the Ebro passable for ships to sea. A deficiency of funds retarded in measure the works. In 1793 a battery was begun in advance before San Carlos. All these works were under the management of a Parmesan of the name of *Nodin*, a skilful artist to whom is owing all the success of the plan. But here again, why do the Spaniards leave the province of embellishing, enlivening and fortifying their coasts to Italians?

This establishment however was not very far advanced in the spring of 1793, and probably will never produce all the effect expected by the court*; the largest vessels, however, may anchor within musket shot of San Carlos, and at the period I was there, the greater part of the regiments from the different parts of the Mediterranean, intended for Catalonia, came thither to disembark. But the air of San Carlos is unhealthy; and it is not at the simple signal of a government that commerce the most capricious of all despots forsakes its old resorts.

CHAP. XIV.—*Entrance into Catalonia.—Passage of the Col de Balaguet.—Cambrils.—Tortosa.—Reus.—Tarragona.—Roman monuments.—Montserrat.*

THE Ebro crossed, you traverse an immense unpeopled district, mostly covered with heath. The whole of this country is intersected by ravines, which renders it extremely laborious to travel over in a coach. Thus did we journey for five wearisome leagues before we descended into the miserable borough of *Prellos* in the bottom of a basin surrounded by a double rampart of mountains. We here secured two asses which were brought to the place where we slept. The frightful description given us of our next day's journey, had made us think this precaution necessary.

It is my opinion one of the most striking phenomena in Europe to a traveller, to find in a country so well known as Spain, between two cities so considerable as Valencia and Barcelona, almost close to the sea-shore, near the mouth of a great river, and on a road so much frequented by travellers of all classes, and of all countries—to find, I say, such vast district so much deprived of resources, and so destitute in appearance of all those comforts which luxury and civilization bring in their train, and every where engender. This is a reflection the most superficial observer cannot refrain from making, particularly between the borders of the Ebro, and the vicinity of Barcelona. I doubt whether in the midst of Siberia, or about the gulph of Bothnia, a traveller would be more bare of resources or consider himself more abandoned by the universe.

* This prediction has been verified; since 1793 considerable sums of money have been expended on the establishment of San Carlos, and yet it is imperfect.

From Perellos the distance is two short leagues to the *Venta del Platero*, a tavern standing entirely by itself at the foot of mountains, and embosomed in woods. We had some merchants for fellow travellers, who gave us small comfort by their description of our morrow's journey, the more difficult for us according to them, from the number of our party, and our being burthened with two children of a very tender age.

We began this painful journey by six o'clock in the morning, myself on foot, my wife seated on one of the animals we had hired at Perellos, and our two children in panniers on the opposite flanks of the other, sheltered as well as we were able from the keen North wind. Thus did we travel for two leagues and a half over the most horrid country; afterwards we climbed by a long spiral march the famous *col de Balaquet*, a steep mountain near the sea. As we arrived at the summit we found ourselves at the foot of a diminutive fort, which had in garrison a small detachment of Walloon guards.

Four leagues farther, after having passed through a small village on the sea-shore, by a tower, and the ruins of an old castle, and after getting through some very rugged passes, we arrived at Cambrils, a town of three or four hundred houses on a wretched beach, where some few barks resort for loading wines. Its site is very unhealthy and tertian agues are very common. This scourge had shortly before depopulated a convent of Augustine monks, the solitary walls of which were pointed out to our party.

An unhappy family of pilgrims with which we had climbed the mountain of Balaquet, resided in this place. It had been in search of health to the miraculous image of *Vinaroz*, and brought back but addition to their misery. A mother, four or five young girls with their feet bare, and with rags, with two infants perishing with cold, and nipped with hunger, were treading back their weary steps, invoking by the way the pity of travellers, sometimes more easily excited than that of heaven. What sad reflections did the sight of these wretched victims of fate and superstition excite in our breasts! Unfortunate family! It returned on foot, without means of support, from a wearisome and fruitless expedition, and yet appeared resigned. And I, and I to murmur, at rough passages that jolted my berline, tight, and well hung, and well provided with necessaries, with whatever was useful, and even with luxuries! I reproved myself for possessing these conveniences as well as for my murmurings. Almost did I reproach myself on account of the modest conveyance for my wife and children. I appeased my remorse by giving them charity, which at first was received with an effusion of gratitude; at length the chief pilgrim chilled my compassion by her importunities, her want of feeling to the unfortunate beings she carried or dragged in her train, and above all by the offer she made me of telling my fortune. At first I imagined I had found a pious and devout woman, a tender mother. My heart was froze at the mere aspect of a mercenary gypsy. How frequently would pity be barren, or even give place to callosity, if the torch of examination were ever to light with its blaze! Is it not a blessing on the part of heaven for the unhappy, that it often possesses the unreflecting promptitude of instinct. I come back to Cambrils.

This bad port is frequented only by some barks which take in lading for Cadiz, Genoa, and some other places. If overtaken off this beach by bad weather, they make for Salo, which is but half a league distant.

From Cambrils we went by a narrow and very rugged road for the space of four leagues, and slept at *Serrafina* after passing through the pretty borough of *Villaseca*.

Travelling from the Ebro, we left *Tortosa* on its left bank, situated on the slope of a mountain, four leagues from the sea. It is an episcopal see, and contains sixteen thousand

land inhabitants. Its neighbourhood is highly cultivated, and it carries on a bustling trade in wheat, owing to its position on the Ebro, which is sufficiently deep to carry large barks. Less than a league from the town those famous quarries of marble are situated, known by the name of *Tortosa-jasper*. Nothing can be more melancholy, more deserted than the space of fifteen leagues which separate Tortosa from Cambrils; and few roads are less passable than that from Tortosa to Terragona.

From Cambrils the plain spreads, and here you again meet with plantations of olive trees, carobs, and vines, in tolerable abundance.

From a league beyond Serrafina you perceive the spires of Terragona, an ancient town in a picturesque situation, on a steep and rocky eminence. A colony of the Scipios, it remained for a length of time the seat of the Roman government in Spain. The sea bathes its walls, and forms a little port, the trade of which has greatly diminished since Reus has become more frequented.

Reus * is a modern town, which industry in a short space of time has raised to a high degree of prosperity. It is situated inland, about four leagues North West of Terragona, from which it is separated by one of the most fertile and best cultivated plains in Spain. The inhabitants of Reus use the port of Salo for exporting their fruits, wines, and brandies. The prosperity which they enjoy is one of the miraculous creations of industry, and well deserves the traveller should turn out of his road a few leagues to be a witness thereto. Under the direction of an English house at Reus there is one of the finest distilleries in Europe, it has also a pretty theatre, very handsome barracks, and the image of activity and abundance in every quarter. A quantity of hides are dressed here, as well as at the town of Bails or Vells which is not far from it.

The inhabitants of the ancient Terragona struggle as well as they are able with their new rivals. Emulous of restoring to their harbour its former prosperity, they have undertaken at their own expence to improve it, by throwing out jetties, which will render it more commodious and safe. The court has given them assistance in this undertaking, by making some concessions in their favour, and by exempting them from divers impositions. Even war has not deterred them from the prosecution of their patriotic measures †.

Below the town of Terragona, and before you enter it, you ford the little river Francoli, which empties itself close by into the sea. Terragona was formerly a place of strength, and part of its ancient walls remain. When I passed it in 1793 a fort had just been constructed there with embasures. Its object was chiefly to prevent an approach to the beach. You may keep on the road to Barcelona, without entering Terragona; but curious to see this celebrated town, I climbed up to it by a steep path. I was struck with the beauty of its position, but found its interior mournful and deserted. Rocks on every side render the approach to it difficult, and most particularly so for carriages. Its cathedral is handsome, but gloomy and supported by pillars of an enormous size.

Terragona contains a number of Roman monuments. Such are the remains of a circus, an amphitheatre, the ruins of the palace of the Emperor Augustus, a heap of Roman inscriptions, and above all the remains of an aqueduct, extending for six or seven leagues, which in 1782 it was in contemplation to re-establish.

* The manufactories of Reus have suffered in the last war; but the activity of the Catalans may be relied on for their restoration.

† It has not been crowned with success. The works begun at the port of Terragona have been abandoned.

As you leave the gate which leads to Barcelona, you descend almost perpendicularly to regain the great road. The environs of Terragona, are, however, chearful and well inhabited. You have an almost uninterrupted succession of pretty houses, from the town to the hamlet of *Figarella* about a league distant.

Two great leagues beyond you pass under a handsome triumphal arch, formerly intended, without doubt, to immortalize some exploit on a frequented spot; at present it stands by itself in the midst of the country. It is in tolerably good preservation, except its capitals which appear to have been of the Corinthian order, and which it has been attempted to renew. The learned in Spain have no doubt of its being erected in Trajan's time. A league to the right of the road is another monument, which has received much greater damage, called the tower of the Scipios, from tradition handing down that two Romans of that name were buried there. Notwithstanding the ravage of time has worn away all the forms, you may yet distinguish two slaves in an attitude of grief.

A little beyond the triumphal arch, you find the pretty village of *Altafolla* delightfully situated, and another called *Torre del Embarr* on an eminence near the sea. This last has a sort of port or road which receives a few barks.

The whole of this country, which we travelled over in the beginning of March, with the Catalonians the infancy of the year, appeared to us singularly pleasant from the mildness of the climate, the variety of cultivation, and the loveliness of certain positions. All that it wants is roads a little less rough.

The great village of *Vendrell*, where the French consul at Barcelona, *Aubert*, had an estate, is some leagues from the *Torre del Embarr*. I observed with pleasure in its neighbourhood a new and pretty chateau, a true country house placed on the side of a hill in an agreeable situation. I learned that it had been recently built and was constantly inhabited by Mr. Peru de Soulis, a modest agriculturist, who, differing from the major part of his countrymen, adopted exclusively a country life. In a country where the fine season of the year is of nine or ten months' duration; where the winter never severe scarcely changes the robe of the fields, that this inclination should be so unusual is extraordinary.

Beyond Vendrell you cross a rather arid country, to reach the pretty borough of *Vil-lafranca*, on leaving which you have before you a chain of mountains, which fringe the borders of almost the whole horizon. There the famous monastery of Montserrat is situated, steep and solitary asylum of those monks, who have fixed the attention of more than one traveller, and among whom I understood some prelates from France had retired.

The monastery of Montserrat is eight leagues North West of Barcelona. The only remarkable place in this distance is the borough of Terraça known for its manufacture of fine cloths. The monastery is situated on the slope of a high mountain, and joins the church, which is one of the most remarkable monuments of sumptuous superstition. It contains eighty lamps of silver, chandeliers, relics, crosses, and busts, all of the same metal, crowns enriched with precious stones, magnificent vestments, &c., the whole destined to the decoration of a miraculous virgin.

What an extravagant profusion in a country in which industry has yet so much need of assistance! I shall not preach either the profanation or violent spoliation of temples. These sudden reforms, these fits of persecution, presuppose and bring on other excesses. Recommended perhaps by reason they are executed by rage; and the obloquy thereof is the smallest damage they occasion. But were these treasures appropriated to render the communication perfect between Valencia and Barcelona, between Barcelona and Saragossa,

Saragossa, and to vivify the interior of Catalonia, of which from the coasts you would form a too favourable opinion; these treasures, would they do less honour to the divinity whoever it may be to whom they are consecrated; and would the guardians of them be less happy, or less revered?

They are thirteen or fourteen in number. Their hermitages are dispersed over the top of the mountain, and occupy the space of near two leagues, as far as to its greatest height. The most elevated, that of Saint Jeremy, commands a magnificent prospect over immense plains. You thence discover the course of rivers, towns, some islands, and an unbounded sea. The inhabitants of these solitary retreats are doubtless little sensible of these beauties daily seen; but setting aside that devotion so much calumniated, the illusions of which are capable of embellishing a desert, they live here a sweet, tranquil, and even agreeable life, without any appointed labor, without any inquietude, as to their subsistence, without remorse, but not without austerity. In the midst of their stagnant wealth, in the very lap of abundance, they remain content with a happy mediocrity; the hospitality which they exercise towards travellers being almost their only expence. Allow that philosophy proscribe, that policy reform, it must be cruelty itself that could speak ill of them. I return to the road to Barcelona.

Beyond Villafranca, the road is traced out, and even begun, but in 1793 it was so much neglected, so uneven owing to pieces of rock, that I wished even a score of times it had never been projected but on paper. The bridge was the only part of the road that had been carefully attended to. To begin with one of them which is a good quarter of a league from the tavern called *El Ostal d'orda*, you find a small portion of superb highway, after which you turn short on the right to be jolted on as bad a road as any there is in Spain. From shock to shock, one almost falls down a narrow, very steep, and stony road, which follows the side of a profound valley. In order to avoid this really formidable pass, a most bold design was projected no less than to unite the two opposite mountains by a sort of bridge of three stories. It was obliged to be abandoned. But the very attempt was grand. A foot-path-way along the valley, passes under the arcades of this bridge, and enables the passenger to form an idea of this gigantic plan.

Beyond this valley you find yourself again on a tolerable road, which leads to one of the finest bridges in Europe. It is five hundred and forty paces long, and embraces the whole of the wide river *Lorregat*. It takes its name from a village on its other side called *Molinos del Rey* or Remolinos. The country you pass over to arrive there, is picturesque but wild. High mountains form almost the whole boundary of the horizon, and industry struggles with an arid soil on their enormous sides; the plough having furrowed every part of it which is not inaccessible.

CHAP. XV.—*Neighbourhood and interior of Barcelona.—Fortress of Montjouy.—Details respecting Catalonia.—Corvera.—Diocese of Solsona.—Mine of Cordona.—Lerida.—Course of the Segre.*

FROM *Los Molinos del Rey*, the road is good for four leagues before you arrive at Barcelona. Nothing can be more chearful, more animated, or more rich than the prospect as you approach this capital, in every respect so worthy of the curiosity of the traveller. Its port, which however is neither spacious nor very good, greatly contributes to its embellishment. Two small rivers *El Lobregat*, and *El Besòs*, which empty themselves near the town, throw up sand in such manner as to make it shallow in spite

of every means of prevention. It is formed by a sort of hedge placed between the citadel of Montjouy, the town, and Barcelonetta, a small modern town built by the Marquis de la Mina, governor of Catalonia, whose tomb is in one of the churches. It is in this quarter that the most remarkable objects in Barcelona are seen; the fine promenade in the manner of a terrace, which runs the whole length of the port; the *Lonja*, a new building in which are united a school for drawing, one for pilotage, and one of trade; the palace of the captain general, which, in spite of its defects, has a very imposing appearance; and above all the new custom house, a magnificent edifice which was scarcely finished in 1793.

Every thing at Barcelona wore the appearance of a speedy war, and in the minds of the common people there existed great animosity towards the French.

In no town of Spain reigns there more apparent activity, or more real industry, notwithstanding the causes of idleness and depopulation which yet exist at Barcelona as well as elsewhere. For here are eighty-two churches, twenty-seven convents of monks, eighteen of nuns, and several congregations. According to the census of 1787 Barcelona contained one hundred and eleven thousand four hundred and ten persons. In no part whatever has population so sensibly increased, if it be true, as is averred, that in 1715 Barcelona numbered no more than thirty-seven thousand souls, and that on the disembarkation of Charles III. in 1759, it still possessed no more than fifty-three thousand. What however may render credible this rapid increase, is the prodigious quantity of buildings erected within these few years, not only within the town, but as well and more particularly in its neighbourhood; inasmuch, that Barcelona for the number and convenience of its country houses is inferior to very few towns in France. Marseilles, which resembles it in some respects, which may be likened to it, although in many instances superior, yet cannot compare its territory with that of this town; where at once you meet with beautiful landscapes, a greatly varied tillage, the bustle of industry, and every symptom of opulence. To the charms of such a neighbourhood be there superadded the advantage of a fertile soil, and a climate which, without being torrid, causes all the productions of hot countries to prosper; the great concourse of foreigners met with; a numerous garrison; the means of instruction furnished by several literary societies; an anatomical theatre; some public libraries; a cabinet of natural history, which Tournefort highly prized, and enriched with a precious collection of plants from the Levant; the cabinet of a private individual, for the variety and choice of the curiosities of the three kingdoms which it contains, it might excite the envy of more than one little sovereign; fine walks, numerous and select societies; the variety of occupations in which commerce and industry are employed; let these be superadded, and it must be allowed, that there are few towns in Europe wherein a man can live more pleasantly, or with more numerous resources, than at Barcelona. Barcelona, however, is yet not what it might become by a great deal, the cause of which may easily be divined.

The lovers of the fine arts will admire here three paintings by Mengs; and those of antiquities, six fluted columns of the Corinthian order, the remains of a superb edifice, respecting the design of which the learned do not agree, the remains of an amphitheatre, those of a bagnio, many trunks of statues, and, to conclude, a multitude of inscriptions which continue to puzzle the learned.

Barcelona, in a military point of view also, is a very important city. It may be remembered, what a long resistance it opposed in 1714 to Marshal Berwick, and of how much value Philip considered its subjection, without which he could not deem himself secure upon the Spanish throne; and that in the late war with France, the second division of troops employed in which obtained such brilliant successes on the side of Catalonia, our

victorious

victorious generals aspired to the capture of this place as a decisive event. Its principal force consists in a vast citadel which defends it towards the East, and Montjouy which overlooks and protects it towards the West. Montjouy is a mountain of some height, on the summit of which is a large fortress capable of containing a numerous garrison. Fortified with great care on the town side, it is exceeding steep towards the sea. Of an imposing aspect at first sight, it quickly appears to the tactician who examines it, too spacious, too much overloaded with works, more massive and expensive than useful, and particularly too much elevated to be formidable to a besieging army occupying the plain.

Barcelona principally owes its splendor and wealth to its industry, and the number of its manufactories. The most remarkable are Indianas and stained linens, of which there are one hundred and fifty. Their manufactories of lace, blonds, and thread employ twelve thousand hands; and an equal number is occupied in silk articles, such as galloons, ribbons, and stuffs of different descriptions.

The population of Catalonia amounts to twelve hundred thousand souls. However much favoured by nature, however much in general alive to industry, one should form far too favourable an idea of them judging from a sight of their capital and the coast. In the interior part of the kingdom are many desert cantons, several of which it would be difficult to draw from their state of barrenness; however, industry has shewn itself wherever it could do so with advantage. Notwithstanding the quantity of wood which has been felled since the reign of Ferdinand VI. for different objects of utility, it still possesses a sufficient quantity for firing, for the demand of manufactories, and even for ship-building; although it imports considerably from Russia, Holland, England, and Italy. Cork-trees (*alcornoques*) particularly abound in their forests, so that it annually freights as many as five-and-twenty vessels with cork for the north, and sends a number of corks to Paris. I have been informed there is a cutter who furnishes four thousand per diem. Catalonia contains, beside a number of walnut-trees of much use in carpenter's and joiner's work, an immense quantity of almond, small nuts, orange and fig-trees, the fruit of which is exported in quantities to the north. The only wood of which it does not produce sufficient to correspond with the demand is oak for staves.

Notwithstanding the prosperity which Catalonia at present enjoys, it is yet not so populous, and possibly less industrious than it was in the fifteenth century. At that epoch, cloths manufactured at Barcelona were sent to Naples, Sicily, and even as far as Alexandria. The modern Catalans, it must be allowed, are more anxious of doing a great deal than of doing it well. The manner in which their articles are finished, and their taste, do not answer the quality of the primary ingredients they employ. The high roads likewise in Catalonia are in general greatly neglected. It is far from reaping all the advantage it might from its soil. What variety of marble does it not conceal! How many mines might there not be opened! There is in particular several of coal, the working of which, proposed at different periods, has constantly met with obstructions. Among others, one has been discovered of great promise at Mentanola, in the diocese of Vique.

Lerida is, next to Barcelona, the most important town in Catalonia. It is twenty-five leagues from this capital. In the space between them you meet with towns and villages at every hour, except on the four last leagues. The five first cross a country rich in the gifts of nature and industry, and the succeeding four evince more than any other district whatever, the enterprising activity of the Catalans.

Farther on one meets with *La Noya*, a small but very capricious river, which is forded a dozen times, which frequently damages the country, but which is constantly its chief

source of benefit. It sets in motion numerous mills, and particularly many for paper, with which the owners supply a great part of the consumption of Spain and the Indies. This is a particular branch of industry which within these few years has made an astonishing progress. In 1777 Catalonia contained no more than one hundred and twelve paper-mills. In 1778 it had more than three hundred. The annual profit derived from them is reckoned to amount to a million of piastres.

On the road from Barcelona to Lerida you pass by the towns of *Igualada* and *Corvera*. The intervening country is not so fine, nor so well cultivated. *Corvera*, built on an eminence in the midst of a vast horizon, belongs to the diocese of *Solsona*, a part of which is mountainous, but the greatest part abounds in every description of grain and vegetables.

Corvera, a town containing five thousand inhabitants, has an university much resorted to, which was founded by Philip V. at the period of his suppression of those of Catalonia; for the resentment of the conqueror, irritated by the long resistance he met with, extended to every thing. Notwithstanding this, Catalonia, the theatre of suppressions, and innovations of every description, has deceived the calculations of revenge; for, deprived of its privileges, and subject to particular taxes, it still remains a province the least aggrieved, and the most industrious in Spain; and the faithful Castilians have more than one reason to envy the rebellious Catalans. Hence the Catalans and Castilians remain to our days two distinct people; rivals, and enemies, they nevertheless in the last war with France united in their wishes and their efforts, the priests and the court having succeeded in persuading them that both were fighting in a common cause. Individuals, nations, whatever your habitual passions, it is the interest of the moment by which you are guided; just as in rhetorical discussions, the mob is ever on the side of the last speaker.

The diocese of *Solsona* however suffers by its distance from the capital and the coasts; and more vigorous efforts are there made for the encouragement of industry; the bishop in particular has been very successful in his attempts at vivifying the neighbourhood of his residence. Iron is manufactured there with advantage; this, with works in silver and gold, cotton, cloth, and lace, employ a great number of its inhabitants, and tillage is very nicely attended to, fallows being unknown. Vines in this quarter do not flourish at the expence of grain, but both species of cultivation are united without injury one to the other.

Cardona, a small town of the same diocese, has a small mine within its territory, which art has rendered very prolific; it is known to all naturalists, and is perhaps the only of its kind in Europe*.

Lerida is situated at the western extremity of Catalonia. Grain, hemp, olives, vines, fruits, and vegetables of every description abound in its neighbourhood. Some canals of irrigation bespeak the active industry of its inhabitants, and increase the fertility of this plain, formerly celebrated by Claudian.

You enter the plain by a fine bridge over the *Segre*, which bathes its eastern side. It is placed at the foot of a hill, on which are the ruins of a castle formerly very strong.

The banks of the *Segre*, and the environs of *Lerida*, cannot be seen without a lively interest by men versed in military lore, nor by those more numerous far, who are fond of treading a ground rendered illustrious by the march of heroes. I mean less to allude

* For an elegant description of the mine of *Cardona*, see the *Dictionnaire d'Histoire Naturelle de Bormare*, tome xiii. page 167. 169. of the fourth edition.

to the sieges and battles of which this country was the theatre at the beginning of this century, than to that ever-memorable campaign, in which perhaps more than in any other Julius Cæsar displayed the talents of a great captain while opposed to the lieutenants of Pompey; a campaign which furnished Guischard with matter for one of his most learned and most interesting commentaries. In travelling from *Balaguer* to *Mequinenza* one should have his book in hand, in order to find in a military memoir all the instruction of history combined with whatever can be most striking in romance.

The course of this river, whose caprices and overflowings opposed to Cæsar eighteen centuries ago obstacles which required all his genius and constancy to surmount, continues to be still as it was then at all times beneficial to the country it waters, but frequently a scourge. The town of Lerida especially is much exposed to its ravages; to preserve it from them, its last governor General Drouhot, a Fleming by birth, had a jetty built, which contributes much to the embellishment of the town, and which may be added to the list of useful works for which Spain is indebted to foreigners.

Before you arrive at Lerida, the Segre, which takes its source at the foot of the Pyrenees, has previously traversed the plain of Urgel, the most fruitful in grain of any in Catalonia. But easy communications are peculiarly wanting to the western part of this province. Its roads are so narrow and so bad, that its rich and numerous productions can be transported no otherwise than on mules.

CHAP. XVI.—*Road from Barcelona to the Pyrenees.*

I RETURN from my excursion to Lerida, and resume the road leading from Barcelona to the Pyrenees.

Beginning with this capital, industry and population are in a flourishing state the whole length of the coast. The first specimen of this is met with at *Badalona*, no more than a league from Barcelona. Four leagues beyond this, you pass through the pretty town of *Mataro*, remarkable for its cleanliness and bustle. It contains no more than nine thousand inhabitants; but its manufactures of cottonades, silks, and more especially of lace, the excellent state of culture of its territory, its commerce, of which wine forms the principal part, make it altogether one of the most important places upon the coast.

The road from Barcelona to Mataro is very pleasant; but nothing throughout all Spain seemed to me comparable with the succeeding day's journey. A new road parallel to the sinuosities of the coast, ascending and descending at intervals the tops of hills, at periods somewhat steep, at others cut in the rock, passes through most charming towns, which, by the manner in which their simply ornamented houses are built, by their neatness, and even the active but unnoisy bustle of their inhabitants, brought to mind the most agreeable districts in Holland. Forget the wintry atmosphere of that province; give it the climate of a warm country delightfully temperate, and refreshed by breezes from the sea; substitute for the mournful and silent course of the narrow, muddy canals of Batavia, the vast extent and agitation of its waters; retain every thing attracting it receives from industry, and you will have an idea of the country which extends from Barcelona to Malgrat.

Some of these towns, which form a striking contrast with the rest of Spain, deserve to be mentioned. On leaving Mataro, you arrive next to *Arens de Mar*; where begins the diocese of Gironne; and which has its little dock-yard, and pilot's school; *Canet de Mar*, a town most pleasantly situated, the inhabitants of which trade not only with

with all Spain, but even with the West Indies, are also beneficially employed in the fabrication of silks; *San Pol*, a modern town, which, under the secundary protection of industry, is perceptibly increasing; *Callcla*, one of the prettiest places on the coast where there are likewise manufactories of cotton, silk, and lace; *Pineda*, another town, where it is common to stop to dine; and, lastly, Malgrat, after passing through which you leave this delightful road and the sea-coast, for a wild country. You next again descend into a tolerably handsome hollow, in the centre of which is the solitary tavern called *La Gunota*, where, in 1793, I found the worst accommodation on the road.

The succeeding day I again entered a mountainous country, divided between woods and heath. At length, the town of Girone is discovered on the back of hills, whereon towards the east some redoubts are constructed, and which, sinking towards the west, form a very picturesque amphitheatre. This chain of hills form a semicircle about Girone. When yet a league from the town, you would conceive it to be situated on an eminence, but you go through and leave it without being sensible of an ascent. Its cathedral, a fine monument of Gothic architecture, is the only building on a high situation.

Girone is unequally divided in two by the *Ter*, which you cross here over a bridge, but which is almost always fordable. This town, famous in the modern wars of Spain, exhibited in March 1793 no military preparations, which confirmed me in the idea, that I have never foregone that the Spanish ministry had not, as was then pretended, a long preconceived intention of breaking with the French republic. The regular force of the garrison of Girone was very small. In some places you could scarcely distinguish the traces of fortifications. The ditches and covered way, peaceably devoted to culture, bespoke the security of the inhabitants, and especially that of the governor *Don Ladislaus Habor*, an active and plain old man, who, when I presented him my passport, the forerunner of a rupture, appeared far from suspecting it so nigh. I felt no disposition to conceive this a paltry stratagem of war, from my not finding throughout a journey of more than one hundred leagues, any of those symptoms of activity which are usual previous to a war, more than I had seen at Girone. Without dispute, the court of Spain had caused troops and ammunition to file off towards the frontiers of France, particularly to Navarre and Biscay; but if it had had any other design than that which it professed even up to the end of December 1792; namely, to protect herself in case of invasion, with which she might reasonably esteem herself to be threatened, from our mustering of forces together, and from various speeches as well in the Convention, as in different popular assemblies. If it had had any intention of invading the Republic, would it not have collected a considerable force in Catalonia by the time when as I had proof on my arrival at Perpignan there were no more than five thousand men in the whole department of the Eastern Pyrenees?

The diocese of Girone, is one of the best cultivated, and most flourishing districts in Spain. The part which is near the sea produces great abundance of wine, lemons, oranges and all descriptions of grain; its mountainous parts are covered with vines, corn, and olives; in its woody parts many cork trees are found, the bark of which forms a considerable branch of commerce; and few are the quarters within the district but what are remarkable for their produce and the industry of their inhabitants. The *Lampourdan*, which forms its northern part, which was occupied by our troops for a year, and in which I sojourned two months in order to negotiate the peace, which shortly after was signed at Basle, the Lampourdan is a vast plain, extremely fertile in every kind of grain and fruit.

A small

A small town belonging to the same diocese, situated near the source of the Fluvia, whose name (*Olot*) is scarcely known, well deserves to be drawn from its obscurity for the astonishing industry of its inhabitants; every one there has employment of some kind, and there is scarcely any work for which they are not calculated. It contains a hundred stocking looms, with manufactories of cloth, ratteens, ribbons, &c., dye-houses, paper-mills, manufactories of soap, cords, &c.

Half a league beyond Girone, is another town of considerable bustle. Two leagues further, after having travelled over a pleasing country, and passing a streamlet near a mill, and a little hamlet, you arrive at *Madrina*, the dirtiest and dearest inn upon the whole road. It is, however, charmingly grouped, with respect to the hill that overlooks it.

From *Madrina* to Figueras (or Figuières), our last sleeping place in Spain, the country is tolerably well covered, and with the exception of a few heaths is mostly cultivated. Fields of wheat are seen, of lupin and flax, but olive trees and vines are in extraordinary abundance. Many small rivers are passed where during great part of the year you find a gutter of water running in midst of a large bed of pebbles; in this particular, almost all the rivers which run from the Pyrenees to the Mediterranean resemble each other, as well in this part of Catalonia, as in the Roussillon. Of this description is the *Fluvia*, which we forded two great leagues before we arrived at Figueras. Its banks at that period were as tranquil as in midst of the most profound peace. Nothing announced that this small river, which, after the capture of Figueras and Rofa, the bravery of our troops more than once excited them to pass, but which was prevented by the wise combinations of our generals; nothing, I say, announced that its shores would soon become the theatre of the operations of the two armies. I beheld them again but with more interest when two years after I was dispatched to Figueras, which, after our successes in the Lampourdan, became the head quarters of our army of the Eastern Pyrenees.

When I was there in 1793, General Ricardos, who had been appointed commandant-general of Catalonia, was momentarily expected. Figueras, which is an open town, and which must not be confounded with its citadel, had then in garrison no more than 1700 infantry, and 300 cavalry; nor did the whole neighbourhood contain more than 5000 infantry. Such was the disposable force of Spain in 1793 to effect the pretended invasion of Roussillon!

At the citadel, situated scarcely a quarter of a league from the town on an eminence, workmen were employed on the fortifications. It already contained a considerable quantity of artillery, and all the ammunition and provisions, destined, eighteen months afterwards, to fall into the hands of the French republic.

At the commencement of this war the Spaniards, by a concurrence of causes, from the catalogue of which I certainly do not mean to expunge their valour, made some progress on our territory. They had penetrated by the Col des Orts, west of Bellegarde, as far as St. Laurent de Cerda, a town in the gorges of the Pyrenees, peopled with smugglers, and persons but little attached to the French republic, and thence had invaded the two districts of Prades and Ceret, obliged the castle of Bellegarde to capitulate, threatened to fall on Perpignan, and turning short towards the sea, took possession of Elm, Collioure, and the port of Vendres. These triumphs were of no long duration, for the honour of the French arms was quickly avenged by General Dugommier, who drove the Spaniards from the Roussillon, retook Bellegarde, and penetrated into the Lampourdan. General Ricardos, to whose activity the ephemeral successes of Spain are in a measure to be attributed, died about this period, and was succeeded by the
Count

Count de la Union, a young and brave general, but of no experience. The French army overcame every obstacle he opposed to their march. Eighty-three redoubts! a sort of fortresses constructed in a hurry, but some of which were apparently impenetrable, placed on each side of the road for four leagues, which separates Figueras from Janquiere, the last town in Catalonia. Eighty-three redoubts! I say, were carried with a rapidity, an intrepidity which cannot be too highly extolled. In a decisive battle, in which the Count de la Union perished, the Spanish army was put to the rout, and the wreck thereof taking shelter in the *impregnable* citadel, carried terror and discouragement in their train. General Perignon, who at that time commanded our victorious army, advancing to within half a league of the place, imperiously summoned the governor to surrender; and two hours after the capitulation was signed, without either breach, assault, without the trenches being opened, or any work begun. When I was in its neighbourhood in 1783, I endeavoured in vain to penetrate through three hundred workmen, who repaired thither every morning to put the finishing hand to the work. They alone were allowed to pass the gate which led to its interior, and I was only suffered to walk round its glacis, and the covered way of its exterior works. Two years afterwards I was rather better served by circumstances, and under the auspices of conquest I examined this place at my ease, of which I had heard the Spaniards vaunt so much.

The fortress of Figueras was begun in the reign of Ferdinand VI. It was intended to be a master-piece in the art of fortification, and certainly is one of prodigality in that line. All military men who have seen it agree that no place in Europe is furnished in greater profusion with the different means of defence. The besiegers in particular were enabled to convince themselves of this, for on their entrance they were untouched. Notwithstanding their valour would make nothing incredible, they themselves with difficulty conceived how it was possible in so short a time to reduce a place which had a garrison of nine thousand men, whose walls external and internal were all of stone, more than a fathom in thickness; whose principal ditches were all deep, and more than a hundred feet wide; the approaches to which on the only side where trenches could be opened were mined, whose principal * cordon was not discernible from without; where every part was casemated, ramparts, barracks, hospital, stables, cellars, and magazines.

Its means of subsistence were proportioned to its means of defence. Water is preserved there in four large cisterns, dug in the four corners of the place d'armes, and supplied by an aqueduct; and there was store of provisions of every description in the greatest abundance, barrels of flour, biscuit, cheese, salt cod, oil, wines, brandy, &c. &c. Of the quantity of each let one single article suffice for a criterion; such an abundance of bacon covered the immense long floors of the corridors of the casemates of Figueras, that from a calculation made in my presence, valuing the pound at no more than four francs, the stock of it must have been worth 800,000 livres.

On examining this place as well within as without, the most ignorant man would ask himself how it could be so easily taken. Some attributed its ready surrender to the terror with which the garrison was seized by an imperious summons, following so closely at the heels of a decisive battle. Others pretended that this garrison, so well provided with bacon, cheese, and brandy, were destitute of flints and matches. While again some could no otherways explain this extraordinary success than by imputing it to corruption, and affirmed that two large casks of money were seen to be carried to the commander, as the price of his treason. Neither is it surprising if, through respect to the glory of

* The cordon, for which the translator, knowing of no English word that corresponds, has consequently adopted the French, means the summit of the parapet, which is rounded like a cord.

their nation, the Spaniards be most willing to give this interpretation to the matter, the most absurd of any; as if at the period of our greatest financial distress we had money to lavish on Figueras, without possessing any for the purpose of securing Luxembourg, Maestricht, Ehrenbreitstein, Mentz, &c. &c., all of them places of far greater importance than this pretended bulwark of Catalonia, the surrender of which did not occasion that province to be invaded; or as if Spanish commanders alone were corruptible. The most likely reason to be attributed for its hasty surrender, nay even the best authenticated is, that those who were to preside over the different operations of the defence of the place were taken by surprise, were destitute of foresight and concord, and that for the garrison under their command, it *was not their courageous day*. The old bye-word, *he was once upon a time a brave fellow*, comes from Spain. Surely the Spaniards will not take amiss that it be for once applied to themselves; for what nation is there of whom at one period or other the same may not have been said?

The French army, after rendering itself master of Figueras, was spread about the neighbourhood from Junquiere to the banks of La Fluvia.

But in order to maintain peaceable possession of the Lampourdan, and secure subsistence by means of the sea, it was requisite it should have possession of the port, the fortresses of Rosas, and the little fort *de la Trinité*, called by us *le Bouton*.

This conquest, less easy and less sudden than that of Figueras, was still recent when I paid a visit to this theatre of one of the brilliant exploits of the army of the Eastern Pyrenees. Rosas is four great leagues east of Figueras. In order to reach it you pass by *Villa Beltran* and *Peralada*, and travel over a very fine country almost wholly a plain. *Le Bouton* is discerned at a distance of almost three leagues. Situated on a slope of the Pyrenees, at the part where they decline in the sea; it appears at this distance a castle in ruins. On approaching, you discover on very even ground the fort of Rosas, whose fortifications consist in a double range of walls, without either a ditch, covered way, or glacis. It could have made but a very short resistance, had it not been for the assistance it received from the Spanish Squadron at anchor in the vast bay, on the shore of which the fort, the village, and Bouton are situated, in a semicircular line along the bay. You pass under the inner battery of the fort to get to the village, which is only a long row of houses whitened over. Beyond the village one has to climb over rocks in order to arrive at Bouton. This little fort has a double object, that of defending the entrance of the bay, and protecting the little town of Rosas, which is distant from it somewhat more than a quarter of a league. On its summit is a light-house for directing ships. Notwithstanding its compass was extremely small, it possessed means of defence in its three platforms, ranged one above the other, against which the French had long to contend. In no part possibly of all the different scenes of this war, so fertile in wondrous events, in no part did the valour of our troops shine with greater lustre than at this fort of Bouton. The artillery designed to batter it was raised by the main strength of man up the declivity to the summit of the steep rocks which surround it; a position to which the most undaunted sportsman would hesitate to pursue the game that should take refuge, hither did they raise, from such situations was heard the thunder of the French artillery; and should the traces of its passage imprinted on the rock be recognized by posterity, it will require the testimony of history to satisfy it as to its cause.

The fort of Bouton was not taken before a considerable breach had been effected; nor did it even then capitulate; for the garrison had time to escape by rope-ladders to the beach, where the boats belonging to the Squadron was waiting for them; so that upon the entry of the besiegers they found nothing but the dead. Our army could not take possession of Rosas until after this capture.

This port is never greatly frequented. It is however formed by an immense bay, in which even ships of the line may moor; but this bay is too spacious, and its entrance far too wide, to afford shelter either against winds, or attacks from the sea side.

The country about it on the side towards the Pyrenees is very picturesque, and appeared to me to deserve a short excursion. In the first place then after leaving the fort, I climbed up the enormous mountains which separate the bay of Rosas from that which is opposite to it on the north, and which you arrive at by sea after making a long round, and doubling the cape of Creus. After travelling for two leagues over a most fatiguing road, I arrived at *La Selva alta*, a town buried in a basin in the middle of rocks. Half a league beyond you meet with *Selva baxa*, a considerable town, placed in an amphitheatre on the bay of Selves or Selva. At both these places our troops were quartered. The second has a little port, which has some trade. It is in this neighbourhood a sweetish wine is made, of an agreeable flavour and colour, and which may be placed as a desert wine on a level with Sherry and Frontignac. There is nothing but "*good luck and bad luck*" for the produce of the earth as well as mankind: Before our war with Spain this excellent wine of Selva, which has more than once chased away care from headquarters, was but little known out of the Lampourdan; but I trust the epicures of our army of the Eastern Pyrenees will make it amends for the oblivion to which it seemed to be condemned.

The whole country, although of wild appearance, in spite of the presence of our troops, bore the traces of as good tillage as the nature of the soil would allow.

In order to return from Selves to Figueras, you keep along the steep sides of the bay. You afterwards descend into the charming basin wherein the town of *Llança* is situated, at some distance from the little inlet of that name. As you travel through this hollow the hills which surround it, covered with vines, have a charming appearance; and after attaining a height on which an old castle is situated, you perceive the town of Peraladas, and at the extremity of the horizon the road which ascends by windings to the fort of Figueras.

The view of the fine country of the Lampourdan, the limits of which I had attained after having travelled over its wildest but most picturesque division, awakened those regrets which the philanthropist ever experiences, on reflection that every where the finest countries are most liable to the ravages of war, Flanders, the Palatinate, and Lombardy. Still, on the other hand, a man must possess a love of glory and dominion equal to that of Catherine II., who should carry this scourge into deserts and rocks, and amid the frozen lakes of Finland. Let me, however, do the justice to our army of the Eastern Pyrenees to say, that the inhabitants of the Lampourdan will not have had much to lament from their length of stay there. It did no other than such damage as is inseparable from military operations. In midst of our cantonments the fields were in full cultivation. In the neighbourhood of Rosas the vines budded afresh about the large holes which bore witness to the recent fall of bombs; and on the hills in the neighbourhood of Figueras, if those be excepted which formed its glacis by the side of the high road, the spacious olive-grounds were scarcely any where damaged. Our soldiers encamped beneath the shade of the trees, made use of none but the barren trunks for their necessities. Philosophy reconciles itself in measure to this terrible and essentially destructive art, where discipline prevents excess.

But let me be candid. In those fits of rage the consequence of resistance to troops accustomed to conquer, in the intoxication of victory disorders were committed in Catalonia, as well as in Biscay, at which humanity shudders; and other excesses were tolerated which policy should have prevented. At *Euguy*, at *Orbaiceta*, towards French Navarre,

Navarre, at *St. Laurent de la Muga*, some leagues north-west of Figueras, Spain possessed founderies of great value for their arsenals. Our armies treated them as if they were a Portsmouth or a Plymouth, not leaving one stone upon another.

In no part, however, of the peninsula was the religion of the country, or its ministers given up to persecution. The pastors indeed, and the greater part of their flock, took to flight at our approach. As has been the case in all wars where religion has been one of its causes, as well as in all those wherein necessity has no law, the French army

“Of many a church a stable made.”

Yet all the churches were left standing after our invasion; yet were not the objects of the veneration of the faithful either overthrown or mutilated; and during the time our head-quarters were at Figueras, I saw crosses remaining erect in some of the principal streets, even in the absence of their adorers.

These precautions, however, were not of sufficient weight to bring over the Catalans to our cause. Fanaticism seemed to have a greater influence on them than the love of liberty. We reckoned too much upon the effect of this sentiment. Among them it is principally made up of an aversion to the yoke of the Castilians, and a vague tendency towards an independent government. But for the extreme vigilance of the court, we certainly could have maintained a good understanding at Barcelona. It is in great cities that discontent is ever most readily excited, and the discontented most easily brought to the same mode of thinking. In these, greater bodies of people collected together, and with more inflammable minds, materially favour the propagation of extraordinary ideas. In these, the same as with a combustible matter, a spark is sufficient to occasion a conflagration. But the court perceived the danger at a distance; and the priests, much more faithful to their own interest than that of the court, easily contrived to counteract the plots of our missionaries. These, at this epoch, discovered sufficient causes of complaint against the government, and found at secret meetings a number of persons ready to give ear to their revolutionary insinuations. Had our successes carried us to the gates of Barcelona, they might have been attended with vexatious consequences to the King of Spain. Possibly it might have been easy to effect the independence of the Catalan republic, and realize a fine dream of former years; in attempting which we should have found a number of well-wishers.

At the same time, a succession of victories had brought us in the west to the gates of Bilboa, and in the south to the banks of the Ebro. After passing this river, the rocks of Pancorvo were the only obstacles which nature, assisted by a little art, had to oppose to the march of our triumphant armies across the two Castiles. Already the inhabitants of that of these two provinces which was the nearest to us, were infected with panic, and emigrating in the utmost haste and confusion. But our generals at these two opposite points were not only brave, they possessed prudence as well as courage. They were sensible, and our government was of the same opinion, that we should have gained nothing by devastating these Spanish provinces in one quarter; or by weakening and subjecting a power to the horrors of a civil war, with whom, after a year of hostility, we felt the necessity of a reconciliation in another. However, even more splendid victories would not have accelerated this re-union in a fuller degree than the arrogance of the English. Thus did our real enemies advance our interests still more than our successful arms; neither is this one of the smallest favours of fortune during the infancy of the French republic.

The Catalans and Castilians united in their affection for a religion which was represented to them as interested in the French revolution, against which Europe had combined, united as well in their attachment to a monarch known to them only by his titles to their esteem, and to whom individually they never imputed the disorders of which they conceived they had a right to complain: the Catalans and Castilians, I say, suspended their animosities to make a common cause against the common enemy. But shortly afterwards, being satisfied of their inability to cope with us, as they joined their efforts in war, so did they unite in their wishes for peace, as well as in their resentment against the real enemy which had caused them to espouse his hatred to us; and we had the pleasure of reflecting that we had not made them expiate the transitory error of their government by any deep or lasting wounds on their prosperity. What would have been our regret if, on reconciliation taking place, we had left Spain a prey to the horrors of civil war, in dread of insurrection, and under necessity of using vengeance; if we had thus rendered impossible any sincere alliance; or at least if this power, obliged to divide its attention and its means between subjects it might have to restrain, and allies it might have to assist, should for a long time have been able to spare us nothing but barren wishes and reproaches.

But it is time to leave Catalonia, and put an end to my long career.

Italiam! Italiam!

From Figueras you perceive the Pyrenees very distinctly. But what do I say? You are at their feet, surrounded by a prolongation of their immense chain, for these hills are a ramification of the Pyrenees; some of them, although distantly, towering above the eminence on which Figueras is situated, and making a long circuit round this fortress, sink into the sea at Cape Palamos.

The Lampourdan, thus enclosed, is watered particularly on the north west to south east by a great number of small rivers and rivulets. Such are the *Lobregat* which flows from the Pyrenees, and passes very nigh La Junquiere; *La Muga*, on the banks of which was the foundry which we destroyed; *El Manol*, along which were our principal cantonments, that is to say *Sistella*, where was the extremity of our principal line. *Avinonet*, *Villafan*, and *Castillon*; *L'Alga* on the sides of which were some others; *La Fluvia*, the boundary of our conquests, a river which is crossed over the bridges *Besalu*, and *Bascara*, notwithstanding it be mostly fordable, and which after running very nearly to the sea at the village of *San Pere Pescador*, afterwards winds about to empty itself two short leagues farther towards the south, at the extremity of the bay of Rosas; and lastly the *Ter*, which falls into the sea, eight or ten leagues below Girone opposite to the small islands *des Medes*.

These rivers and rivulets, which for almost the whole year are fordable, are swollen in the spring by the thawing of the snows, and the rains which accompany the thaw. In April 1795 I was witness to one of these periodical floods. After three days of hard rain, all the small rivers between the Fluvia and Figueras, and even the Fluvia itself, became impassable, and the communication of the infantry between head-quarters and some of our cantonments was nearly interrupted. Such events are common in a great part of Spain, and especially in Catalonia; and during the famous campaign which we have previously noticed, one of these sudden inundations of the Segú, the Cenna, and other considerable rivers, opposed obstacles to the operations of Cæsar, which it required all his genius to surmount.

The road from Figueras to Junquiere was pleasant to travel over, even before it had been strewed with monuments of French bravery. You at first follow the course of the chain

chain of hills (for the most part productive) which lie in the neighbourhood of Figueras. As soon as the little village of *Pont des Molinos* is passed, you begin to see the continued file of eminences on which the Spaniards constructed those redoubts, which would for a long time have stopped an army of less intrepidity than ours. Some of them are on the banks, but on the opposite side, of the Lobregat, which flows from the foot of the mountains of Bellegarde, and which is twice crossed over handsome bridges. Shortly after leaving all these redoubts behind, and clearing a hill, the mountains appear before you, on one of which is Bellegarde; and at the foot of them the modest town of Junquiere, which looks as if liable to be annihilated in an instant by the fire from that threatening fortrefs.

La Junquiere, situated at the entrance of a valley, which enlarges by degrees towards Catalonia, possesses no other resources than tillage and the cork-trees which cover the adjoining mountains. This town is perfectly open on that part which leads from Spain to France. In 1793 I found here no more than a detachment of two hundred men. In consequence, its inhabitants, notwithstanding they professed the most lively attachment to the government of their King, bitterly complained of their state of destitution, in such a formidable neighbourhood as that of Bellegarde.

This fortrefs, however, has not near so imposing an appearance from this spot as from different others upon the road, which, by many windings through the rocks, comes from the other side of the Pyrenees. This lofty ruler of the neighbouring vales is beheld with pleasure mixed with awe, and lost sight of again at least ten times as you trace the fatiguing maze.

It is full half a league from La Junquiere to the spot on which one is directly below Bellegarde; and along the whole distance the ascent is scarcely perceptible. The first object you meet with upon the road is a small lonely house, near which in 1793 two small columns yet remained, which marked the limits of France and Spain. The one bore the arms of His Catholic Majesty, the other that of the French republic and its emblems, fresh engraved. In 1795 I found these limits destroyed by victory. The columns were broken, and the road strewn with the pieces. One would have imagined Catalonia irrevocably joined to the French republic.

A little beyond there is a small village called *Perthus*, whereat one of the roads begins which leads to Bellegarde. Here during peace is the office for examining the passports of travellers. Here in 1793, in the month of March, did I meet with groups of our brave volunteers, who frequently came down from the fortrefs to learn the news of the day, and especially to enquire if the signal for war with Spain would shortly be given; my return to France appeared to calm their impatience. It is from this town that the *Col de Perthus* takes its name, which leads from the Junquiere to Boulou, by windings which one is led to think are endless.

As far as Perthus the road is excellent, but from the spot where our territory begins the road in 1793 was exceedingly neglected. In 1795 it was in tolerable repair. From Junquiere to Boulou it winds among the gloom of the lofty Pyrenees, and occasionally presents views which are highly picturesque. In this country, which one cannot travel through without pleasure mixed with apprehension, nature is alternately cheerful, majestic, and terrible. As is the case in most mountainous countries, she has displayed a great variety of positions, and appears to delight in uniting opposite climates. At times you leave the plains of Catalonia or Roussillon with nothing but serenity throughout the whole horizon; and shortly after you penetrate the varied abode of tempests. I myself experienced this during the month of March 1795, in one of my excursions from Perpignan to Figueras. On leaving the Roussillon, the weather was perfectly mild; but when

when I attained the summit of the Pyrenees, I was overtaken by a violent storm. I trembled for some time by the light of continual electric flashes; and upon my arrival in the Lampourdan I found the earth covered with snow, which had fallen while I was passing the mountains. How trifling does man appear with all his schemes by the side of these grand accidents of nature! How paltry the most formidable armies compared with these ribs of the world! How small do they appear amid deep and extensive vales! What is the noise of terrestrial artillery to that of thunder a hundred times reverberated from their different sinuosities! Generations of heroes pass along and are no more; but the enormous mass of the Canigou, perpetually clothed with frost, remains still the same, as durable as the world.

From Perthus it is something more than a great league to Boulou, which is seen in the middle of a hollow surrounded by an amphitheatre of mountains, some of which are covered with snow even in the spring. Among them *Canigou* rises on the left and pierces above the clouds. This is one of the most distinguishable points of the Pyrenees. In vain do you leave it behind, distance scarcely seems to diminish its mass; and on reaching Perpignan you might still think yourself at its foot.

Before you ascend towards the village of Boulou, which is the first post town in France, you arrive at the banks of the Tech, a small river which has its source in the Pyrenees, washes *Pratz de Mollo*, and the *Fort des Bains*, runs close to the little town of Ceret, and empties itself into the sea above Collioure. So late as 1793 you were obliged to ford it with much inconvenience. It was a disgusting sight to behold men with no other clothing than a shirt plunge into the water up to the waist, and push the carriages of travellers by main strength before them to the opposite side. War which laid waste its borders, has however caused a little wooden bridge to be built, which after facilitating for two years the passage of the armies and their train, serves now for communication of a more peaceable description.

I finish with Boulou, which is only the distance of a musquet shot from the Tech. I shall now take a farewell prospect of the fine country which I have endeavoured to describe, in order to present my reader with a recapitulation of my observations, my conjectures, and wishes.

RECAPITULATION.

I think I have proved that neither Spain nor Spaniards are deserving of the disdain with which they are treated by ignorance. On the contrary, what are they in want of that is desirable? Does not Spain possess all the elements of prosperity? What a delightful climate! What numerous productions which industry more enlightened and better directed might easily bring to perfection; wines, fruit, wool, silk, oil, horses, &c. What riches of every description contained in the bowels of its soil! Of what would not its inhabitants be capable if the government did but second the exuberance of nature!

But a fatal instinct seems to incline it to oppose its beneficence. Continually do we meet with wrong measures perpetuated by custom and obstinacy; or where new ones are proposed by genius, when resolution begins them, envy and prejudice are ever on the watch to stay them in their career. In no country possibly have calumny and intrigue exerted themselves with greater success to the injury of merit and talent. Let us endeavour to enumerate the distinguished characters which in our time have been condemned, some to flagrant disgrace, and others to a state of nullity.

Shall we mention *Maritz* and *Gautier**, employed one in re-establishing the artillery, the other in ship-building, escaping from their persecutors only by a miracle.

Oavidis† snatched from his flourishing colony, to be immured in the dungeons of the inquisition.

A *Marquis d'Iranda*‡, whose vast knowledge in affairs relative to administration, and especially in what regards finance, have been constantly dreaded these thirty years back, yet are scarcely ever consulted.

A *Count de Campomanes*, who at the end of his long career as a learned man and a magistrate, is left to the enjoyment of that, of which he could not be deprived, a well earned reputation.

A *Count d'Aranda*§, paying for the energy of his character, and the wisdom of his councils, by being twice in disgrace.

A *Cabarrus*||, whose talents and services are remunerated by four years imprisonment.

A *Thomas Munoz*, whose success in the immortal undertaking at Cadiz, rather excited envy than applause.

A *Mazaredo*, less known, less esteemed in his own country than by two neighbouring nations who do justice to his eminent characters.

An *Augustin Betancourt*¶, one of the most skillful machinists in Europe, according to the learned in England, and France, who indeed is neither neglected nor forgotten; but for whom no employment could be found in Spain, where notwithstanding all machinery employed in arts and trades is very imperfect, and who is therefore sent to construct roads and canals in Cuba.

A *Malaspina*, and a father *Gil*, imprisoned at the instant they are about to publish a new voyage round the world.

A *Francisco Saavedra*, who, after evidencing in the Spanish colonies an unusual aptitude for government languishes almost unknown in one of those honourable places reserved as a reward for the long services of mediocrity, or as a quietus for talent, the exercise of which is not desired**.

* Both of them are dead; the one twenty years ago, the other in 1800: but the first left children in the Spanish service who were to maintain their father's name.

† He is returned to his country, and lives peaceably in a small town of Andalusia, with a pension of 90 thousand rials. His return to Spain was preceded by a religious work entitled *el evangelio in triunfo*, composed during the latter part of his retirement in France, which has met so great a demand both in Spain and in the Indies that it has run through four editions.

‡ He died in 1801 at a very advanced age. He obtained towards the end of his useful life the vain honour of councillor of state.

§ He died exiled at his estate in Arragon.

|| After regaining some degree of credit, as we before noticed, he retired to private life four years ago. At first he took up his residence near Torrelaguna, fourteen leagues from Madrid, where he amused himself with agriculture. Lately he has been travelling about anew; and not long ago was at Paris.

¶ His expedition to Cuba was prevented by various circumstances. On his return to Madrid, he fixed the attention of government by his calculations. He was employed in establishing telegraphs, an object in which he was instructed by Mr. Brequet during his last stay at Paris. He has begun one which communicates between Buen Retiro and Aranjuez, and is to be continued to Cadiz. At present he is one of the directors general of the post office, and entrusted particularly with the department of highways and bridges. In this capacity, he has caused *one hundred and forty-one* bridges to be constructed or repaired recently on the two roads from Madrid to Barcelona, the one by Valencia, the other by Saragossa to facilitate the expedition, which the King and Queen are about to make to Barcelona in the month of September 1803.

** He was in 1798 at the head of foreign affairs: but shortly after provisionally succeeded by Mr. d'Urquijo, and definitively by the present minister Cevallos. From the illness which was the cause of his being displaced, he was obliged to remain a year at the Escorial; he was afterwards permitted to retire to Puerto Real near Cadiz, where he at present resides.

A *Ramon*

A *Ramon Pignatelli* *, a *Gaspard Iovellanos* †, citizens full of learning and patriotism, confined to obscurity, the one in Arragon, the other in the Asturias, and who on the narrow theatre where they are placed by circumstances, render service to their country, and meet their only reward in the esteem of their fellow citizens.

And so many other learned men, artists, men of talents in every known department, who are appreciated, yet suffered to languish inactive, and almost in want ‡; while at the same time pensions and places are found for loobies and intriguing characters. Funds are wanting for useful undertakings, while sufficient yet are found to supply out a pomp which adds no real splendor to the throne, but which is capable of furnishing dangerous matter for discontent to work upon.

And yet, spite of the incumbrances which clog this nation, spite of that injustice which is so discouraging, though prejudice calumniate it still, how much has it not already effected towards withdrawing itself from the debasing inertness to which it was condemned at the close of the last century?

If inclined to judge of Spaniards with less severity, compare the reign of Charles II. with that of Charles IV; see what in the one period was the state of manufactures, commerce, the navy, and learning of every description, and what in the other.

And how much more striking would this difference have been, but for her frequent and useless wars, which have accumulated hindrances to that course of prosperity which it has been tracing for almost a century past; and but for the opposition arising out of momentary circumstances to plans, which, in order to insure success, should be permanent.

How lamentable to behold a nation, apparently grave and reasonable, the slave of the paltry passions of those around the throne, and that too in a greater degree than any other, than even our own nation. Did the Chancellor Bacon calumniate the one, and flatter the other, where three centuries ago, he said; "The Spaniards appear to be wiser than they are. The French are more so than they seem."

In fact, how much have the first been the victim of caprice. If we look to the period alone which has succeeded the extinction of the Austrian dynasty; what was gained by the two wars of Philip V., unless the barren honour of seeing his posterity occupy two little sovereignties in Italy? Ferdinand VI., of more pacific disposition, sanctioned with his name some brilliant attempts, but more fond of money than glory, he accumulates wealth, and allows several branches of administration to fall to decay. As Frenchmen we may reprove his partiality towards the Court of London. He deserves rather more than pardon judged by a Spaniard, since it retarded the period of Spain taking part in the disasters of the war of 1756. Charles III. shews himself more generous in appearance; but it is on account of his being a Bourbon, and personally an enemy to England, that he joins our quarrel. This devotion to our cause costs Spain a part of her navy and Florida. Spain is indemnified for the loss of this by the cession on our part of Louisiana. But what did the Spanish nation gain by this? What

* He died at Saragossa, to the last intent on the works of the canal of Arragon, without ever obtaining any other recompence than a cool testimonial of esteem. This however was sufficient for one of his bold and independent spirit.

† Enough has been said of him in course of the work. Turned out of administration shortly after his introduction, he was at first banished to the Asturias. At present he is confined in a convent of Carmelites at Majorca.

‡ In this instance, however, we must do justice to the Spanish government, and allow that latterly, in many examples it has done justice to merit, even where distinguished by public opinion alone; that it has brought into action, several estimable subjects who deserve and have justified the confidence with which they have been entrusted; and if some faults, perhaps frivolous in themselves, or but badly proved, have at intervals been punished with signal disgrace, yet have no services been left without reward.

but colonists which its government estranges by the exercise of a horrid tyranny, and afterwards seeks to endear by sacrifices? Seven years afterwards a quarrel on a point of honor threatens a rupture with England*. Fresh ruinous efforts to obtain satisfaction; fresh distraction of funds destined for useful undertakings. Our intervention disperses this storm; but eight years scarcely elapse, before Spain suffers herself in opposition to her interest to be dragged into the American war. Minorca and Florida recovered were the fruits of this war, impolitic at any rate, if not unjust; but the completion of the unfinished canals of Castile and Arragon, so long in hand, would have been of much greater benefit to the nation, and would have been more cheaply purchased. Scarcely had she enjoyed the blessings of peace for seven years entire, before she was disposed on account of some dispute respecting furs from the extremity of America, to resume anew the cruel diversion of war, and put a stop to the most beneficial plans. But projects still more insensate, solicit and obtain a preference. A vertigo which seized upon all the cabinets of Europe fixed its attention upon the French revolution. The court of Madrid placed itself at the head of those powers who conspired its overthrow. Of a sudden, it changes both its ministry and its plan. It seems disposed to remain a passive spectator of our hurricanes, and to keep in a defensive attitude alone, when an event, more affecting to Spain than any other monarchy, causes her to join, although contrary to her interest, in the general resentment. This error, which would stand acquitted before a tribunal of sovereigns, is however but of momentary duration. The experience of eight-and-twenty months, is found sufficient. It sees the return of peace after making efforts, and meeting with disasters which render alike necessary repose and economy. You conceive it about to become wholly occupied with the payment of its debts, the amelioration of its finances, the construction of roads, canals, &c. But no, it is more gratifying to her pride, to attempt to chastise the arrogance of her late momentary allies. Granted that its resentment were just. As a Frenchman, I can but applaud the part it took, and wish it be justified by success†. But this war, whatever may be its success, will retard its advances to prosperity; but if it should turn out unfortunate, Spain has so many possessions to lose, so much lost ground to regain! Peace is to her above all others a paramount duty, if it can be preserved with safety, and without dishonour; notwithstanding which, it has in less than a century been exposed eight times to the hazard of war, and for what, unless to gratify the quarrelsome disposition of its cabinet, and the paltry passions of those by whom it is governed.

It is not by such conduct that a power, formerly of the first rank, can hope to become regenerate or resume its ancient state. Every century in a monarchical state will produce at least two weak sovereigns, some ambitious queens, such as Isabella Farnese, and some restless ministers, such as Alberoni, and Florida Blanca. In every century more than one occurrence will take place of equal importance with the affairs of the Falkland Islands, and Nootka Sound. An empire, the fate of which depends on similar rulers, may make a noise in the gazettes of the day, it can but excite the regret of posterity. An infant state may gain strength from being exposed to storms; arrived

* The question respecting which this quarrel originated was, whether or not Spain had fair pretensions to dominion over the whole of the North West coast of America. It disputed a claim on the part of England to form establishments at *Nootka Sound*, between the 49° and 50° of Northern latitude. It was decided by a composition, by which the English were allowed to establish themselves between *Cape Mendocino* in the 40° of latitude and *Nootka Sound*.

† This wish has not been attended with the desired completion. In the war now terminated, the Spaniards have certainly displayed much bravery and talent. It has given them new claims to our esteem and gratitude, but has been of no advantage.

at maturity, and in a healthy condition, it may be able to withstand them; they are inclemencies dangerous to the convalescent.

Of this Spain exhibits a proof. Its inhabitants are endowed with a happy and fruitful imagination, and possess great aptitude for the arts; they have founded establishments of almost every description; streams of wealth run at their feet beneath a transparent surface. Good sense is met with among them, even in the most obscure classes; and of late years intelligence, even in the highest ranks; but with so much versatility, so many plans conceived by one passion, and frustrated by another; can we wonder at its stationary position? These, much too frequent, repetitions of useless war, and peace rather of a shewy than permanent nature, these short intervals of wisdom succeeded by long fits of extravagance, these render the work of her regeneration as arduous as Penelope's web.

In order to consummate the plans for her posterity already begun, more steadiness is requisite, a firmer resolution, supported by greater activity, with less attachment to distant enterprizes. It is fit that the ministry should direct its attention rather to the foundation of schools at home, than to the Philippine company; rather to the vivification of Castile, than the island of Trinidad*.

The present appears to be the most favourable epoch Spain has experienced for a long time. With a minister of unresisted sway, in the flower of his age, who seems to be seriously intent on the public weal; a monarch whose purity of life and robust constitution forebode a long reign; fine plans sketched out, and genius for the conception of others; hands which require nothing but practice and encouragement to render them expert; a people haughty it is true, but unless insulted, tractable and affectionate; a people the government of which is organized in such manner, its temporal and spiritual agents so distributed, and its population so much dispersed, that twenty methods exist of watching over and restraining the dissipated, while they possess not a single rallying point to make them formidable, and are themselves of a temper to be easily appeased by a shew of kindness, the most certain of all means of banishing discontent. With these, what a fund of means for doing good, with all the confidence inspired by undisputed authority, with all the deliberation of wisdom!

As owners, ruling every thing with thought,
Fearless of being displaced, and hurrying nought.

And for triumphing over obstacles, which men and circumstances occasionally oppose to the most useful undertakings!

To avail itself of these favorable circumstances, let Spain dismiss that covetous ambition which mistakes glory for prosperity; and which, if I may adopt an adage in the modern law of nations, fancies limits fixed to states by nature; as if any usurpation by such a grant might not be made legitimate.

Let it learn from its own experience, that power is not the consequence of large possessions, when, as is its case, a vast territory at home, sufficiently capable of every species of improvement and prosperity, is continually invoking additional culture, industry and population.

To give an example, what might be expected to be the result of the conquests of Portugal to Spain, a project to which the present government is supposed surely without any reason, to be strongly attached? Can it be blind to the existence of those prejudices in the two nations, which an union must tend to encrease? Hopeless of ever endearing

* Ceded to the English by the peace of Amiens.

to itself the conquered country, it would be obliged to watch over and restrain its emotions by extraordinary measures; which would divide the attention of its government, encrease its expences, and expose it continually to storms. An invasion of this description, which no spurious pretext can justify, which would be a source of and plea for insurrection, would render Spain obnoxious in the eyes of all impartial Europe: it would serve as a warning to a great part of it, to combine against two powers, the renewal of whose alliance should be the signal for the most ambitious undertakings; it would awaken in all its force, the sworn hatred against the two principal branches of the house of Bourbon would shortly create them new enemies, and disturb the repose of years, of which both countries have need for their mutual regeneration.

Yet granted the incorporation should be peaceably effected, consolidated without internal tumult or external wars, in such case the danger would certainly be less imminent to Spain, but not less formidable. Her European states remain thus limited by pretended natural boundaries by the Pyrenees, the ocean and the Mediterranean. Irrevocably the ally of France, which she appears to view as her permanent interest, she has no invasion by land to apprehend, and is secure in her distance from the maritime states, from any disembarkation on her shores. In this position she may give herself up to the arts of peace. These are indisputably all that are requisite for the happiness of individuals, and prosperity of empires, but this art of war, however fatal, is likewise necessary. It consolidates power, without which prosperity becomes precarious, and is lost in the quiet of a peace of long duration. When surrounded by allies alone, when exempt for a long time from all alarm of war, a state becomes effeminate, and an easy prey to an usurper, or a conqueror; or should it escape these dangers, it sinks beneath the burthen even of its own prosperity.

Let not those, therefore, who wish to assure a durable prosperity to Spain, seek it in this rounding of territory, which is gratifying to women and children alone. It is undoubtedly in want of allies; but it requires also jealous and rival neighbours to keep its activity on the alert, not to suffer it to neglect its means of defence, or even of attack, which the passions of men will constantly render necessary. It requires long intervals of peace but until the fine dream of the Abbé de St. Pierre be realized, it is also requisite that its vigilance should never sleep, and that its courage, one of the distinctive characteristics of a Spaniard, should not become paralyzed by the absence of danger.

Perhaps one ought further to wish that their government, renouncing old prejudices and false ideas of grandeur, should fearlessly contemplate the prospect of the inevitable future independence of the greater part of its colonies; that preparing itself beforehand for this separation, it might prevent its being attended with bloodshed; that instead of treating her colonists as grown-up children, under the yoke of a step mother, she should freely emancipate her children, who thus might preserve a lasting affection for their mother, and become her most intimate allies; that she should become convinced that this pacific revolution, gently brought about by wisdom, would be facilitated by the conformity of manners, language and religion; that she might profit by the example of England, whose tyranny towards its old colonists retarded this approximation, but which for years back has witnessed, as a consequence of the nature of things, the natural predilection of one nation in favour of another, with which it had been long connected, and with which it preserves so many correspondent usages; that this government might learn also from the example of the same English, of the Dutch, and of the French that it is neither the number nor the extent of colonies, but their mode of organization and the excellence of their laws which tend to enrich the metropolis; for the French part of St. Domingo alone, in 1788, was more productive to

France than the island of Cuba, Mexico, and Peru together were to the Spaniards. — I pause. I call to mind the antiquated prejudices retained in the archives of the council of the Indies, heir looms devolving to each minister of the day, from the period of the conquest of America. I feel how abortive all such hopes must be; but woe to Spain if they be long deferred.

At least I conjure you, Spaniards of the present day, renounce these schemes of aggrandizement with which you are charged. Has not your government, have ye not yourselves a thousand other modes of encreasing your prosperity, employing your zeal, your riches, your talents, and your courage?

Your zeal, which especially within these twenty years is directed to objects worthy of you. It was the parent of those patriotic societies, the opening of which was of such auspicious promise, but which, with some few exceptions, have brought forth nothing but plans and good wishes; but which at the same time ask for encouragement alone to become far more productive. For notwithstanding your government be despotic, you truly possess the *amor patriæ*; and notwithstanding the efforts that are used to keep you in the dark, this attachment to your country has promoted intelligence.

Your riches, which lay idle in your money chests, or are placed in banks which receive it at a moderate interest, and employ it for their individual advantage; why do you not dedicate them, not to pious foundations already so numerous, and which seem rather intended to encourage indolence than solace distress, but rather to establishments which might be serviceable to your country, beneficial to yourselves, and spread life and plenty from one boundary of the empire to the other? Imitate in this instance at least those haughty rivals, who never ought to have been your allies. Contemplate the amazing works of this description which public spirit has generated in England, its numerous canals projected and begun, not at immense expence by kings, ministers, or intendants, but by individuals who enliven whole districts for their own particular profit. In some of your provinces, you already have canals of irrigation which might serve for models. Encrease the number of them. Your country, however parched it appear, possesses more resources of this kind than meet the eye of the rapid traveller. It is destitute of shade; second the views of government by a multiplication of plantations. Thus will ye shelter your cattle, your meadows, and yourself from the fury of a burning sun. Invite and pension artists who may furnish you with machinery to lessen labour and save time. Without waiting for the interposition of government, repair the roads of your different neighbourhoods, cultivate breeds of horses, and artificial meads. This luxury will ye find more gratifying far than your rich gala dresses, your numerous pensioned satellites, and your various trains of carriages.

Your talents are evidenced in every department. In printing you excel. Your manufactories of cloth, particularly those of Guadalaxara, and Segovia, come nigh to perfection. For twenty years back have your silk works made such progress as to excite alarm among your rivals. In your roads, in Biscay, Navarre, that of La Sierra Morena, and those of the neighbourhood of your capital, in your basin at Carthagena, in the dam opposed to the waves before Cadiz, in many of your modern bridges, in several of your vessels of war, you have exhibited master-pieces of industry. Civil architecture has produced buildings in the capital, at the different royal residences, and in several great towns, remarkable for the excellence of their plans, and for the symmetry of their proportions. You have several engravers who deserve to be noticed, and who only want to be better known, and more encouraged. Some of your painters revive the glory of your school, too little known among foreigners, and which, though late, your government at length means to hold out to the admiration of Europe with the

assistance of the engraver *. Other arts less brilliant but more useful are cultivated among you with success. You have brought to perfection the manufacture of iron. You make advances in refining copper. Your works in gold and silver begin to assume somewhat of elegance. Few coins are better struck than yours in Europe. Shortly your government will no longer be under the necessity of leaving to foreigners of genius, and foreign mechanics, the care of conceiving and executing schemes for your own advantage. Too long has genius been with you an article of importation, it has at length become an indigenous production. It is now the duty of your government to seek it out, and turn it to profit.

And lastly, *your courage* has indisputably sufficient means of exercise in time of peace; for much of it is wanting to attack those abuses which account for and procrastinate your state of languor. It is wanting to diminish the multitude of priests and monks who are a scandal to, and devour you, doing no less an injury to religion than to agriculture. It is wanting to effect the partitioning of those properties, the vastness of which explains the imperfect cultivation and unpeopled condition of the two Castiles and Andalusia. It is wanting to stop in their destructive career those *Majorats*, an institution of pride, so opposite to the feelings of nature, which unites in a first born male and his race every advantage of fortune, and thus paralyzes a multitude of estates. It is wanting to divest the *Mesta* of its ruinous privileges, and to restore to proprietors the exclusive enjoyment of their fields and pastures. And especially it is wanted to cure the people of its superstitious practices, and overturn those altars on which they sacrifice with trembling; to deliver it from the tribunal which it dreads as much as it reveres, and which is useless even to despotism, when it combined wisdom with energy.

And as to these different kinds of courage, in possession of which Spain would shortly become regenerate, it is among the governors alone that they have been wanting hitherto; many among the governed possess them fully. How many ministers have there not been in the last century, animated with that daring spirit which actuates man to great actions.

Here an *Alberoni* giving a shock to the Spanish nation, violent it is true, and ill timed, which however tends to awaken her for some years from her lethargy.

There a *Macanas*, who dared to oppose the abuses of the Inquisition, and who afterwards became its apologist.

A *Campillo*, facing the clamours of the farmers general, those cormorants of the revenue, and putting the collection of the revenues of the crown into commission.

An *Ensenada*, conceiving many bold and useful plans, seeking and finding able coadjutors.

A *Galvez*, trampling on antiquated prejudices which restricted the commerce of Spanish America to a single port.

An *Olavidé*, attacking vigorously the most sacred abuses; creating, organizing, and spreading life through a vast colony, and metamorphosing forests and deserts into a cheerful neighbourhood.

A *Carrajo*, braving the hatred of great proprietors for the purpose of despoiling them of their usurpations.

* For some years back, the court of Madrid has projected, however tardily, the production to the world of the celebrated works of which it is mistress by the means of the engraver, and notwithstanding the war, it appears that the plan is continued, artists being employed for the purpose, as well natives of the country, as those of France and Germany.

A *Count d'Aranda* calling philosophy about the throne, the application of which, tempered by wisdom, would encrease the prosperity of the subject without weakening the power of the King.

A *Cabarrus*, endeavouring in spite of custom and envy to establish beneficial innovations that unfolded resources, of which the Spanish nation had scarcely a conception.

A *Roda*, a *Campomanes*, a *Florida Blanca*, even attempting with the same success to to restrict within due bounds the authority of the church, distinguishing properly between a respect for religion, and a stupid veneration for its ministers.

These, and twenty other examples, prove that particularly in this last century, as soon as government has manifested a disposition to patronize useful enterprizes, it has found intrepid agents ready to promote its views. Let it therefore but be bold, its subjects will not be found deficient.

Despotic governments possess this advantage every where; a single demonstration of their will firmly made, and resolutely adhered to, may effect wonders, even among nations of small intelligence, and without animation. Of what then might not that of Spain be capable with a populace fecund in men of brilliant genius and strong character; with a nation which, properly restored to its natural energy, would only require to be directed and restrained.

What a charming task, young minister, has fate allotted you, you whom I saw at your first appearance! The course is before you. The sovereign's favor levels every obstruction before you; it may conduct you to a fame of greater durability, and much more worthy your ambition. At your age you may conceive extensive plans, and trust to consummate them. If so disposed, you may at once refute the calumniators of your country, cause it to resume its rank in Europe, and establish for yourself a most distinguished one in history.

Already do you fill some of its pages which you ought not to wish to see torn. You have been at the head of affairs during a war which was much less disastrous to Spain than what it might have been; and at the establishment of a peace, in which the sacrifices on your part have borne no comparison to the misfortunes experienced. Without denying the part which skill certainly had in a matter which astonished all Europe, one yet may believe that the influence of the fortunate star, under which you were born, has extended to your ministerial operations. The name you have adopted in consequence of these great events, seems to hold out an abridgement of what you conceive your duty. But if for an instant I could forget I was a Frenchman, I should charge you with having already forsaken it, by engaging your country in a new quarrel, the least injurious consequence of which will be that of retarding the return of complete prosperity; of that prosperity, all the sources of which are in your custody, and which if facts, and a crowd of other testimony may be credited, is the most earnest wish of your heart. For we well know that politics and military affairs engross not all your time, that you are desirous of promoting arts and industry, and that far from fearing genius you take pleasure in raising those whom modesty and want of encouragement have placed in obscurity; that you enable intelligent persons to travel abroad in order to obtain instruction on taste which is wanting in your various establishments, for convenience and luxury, and to study by nice inspection those models which national pride need not blush to copy.

We learn more recently that, seconded by eminent persons whose confidence you enjoy, you have resolution enough to make head against a tribunal, once formidable to sovereigns themselves, and that in the contest, the temporal power has proved victorious.

These

These wise measures, these vigorous acts are of good augury. You appear to be sensible that it were vain to attempt the regeneration of a country while subject to fanaticism. Your country has lately thirsted for information, and now it will be fruitless to oppose the inclination. The waters, whose course a dam would stop, or overflow, or break away the mound, their tranquil course might fertilize and irrigate the adjacent country, which their violent irruption would lay waste. So is it with knowledge, if it still had to contend with institutions which might restrain its progress, it would disturb the tranquillity of the country, and might even shake the throne. It is by fostering it, that power will preserve itself from the inconveniences it else might experience. I would willingly compare it to those French revolutionists, whom kings have thought it right to persecute in order to prevent the extension of their alarming maxims. Those French who, before the rupture were watched with vexatious severity, were then by their secret conspiracies much more to be dreaded than they are now, that peace is established between the two nations, and frankness presides in the different relations between the two governments. So is it with knowledge. If you wish to render it dangerous, repulse it, treat it as an enemy. If you would render it beneficial to the people, uninjurious to majesty, treat it as an ally.

This truth is not foreign to every court. Yours is worthy of hearing it. Your conciliating disposition, your good sense will make light the task of ensuring its adoption. Perhaps it would be the most secure method of securing your country against that revolutionary spirit with which it is said to be threatened. Europe, which has its eyes upon you, must have to say thus of you.

By the mildness of his administration he managed so as to render despotism tolerable. He listened to the advice of that philosophy which does not stand discredited with him, because of the errors of some of its followers. He wishes the church to continue the support of the throne, but not to rival its power. He allows it should remain the protector of orthodoxy, but interdicts its persecution.

Firm and faithful to the ties which nature and experience prescribe to his country, he thinks it ought to have perpetual allies, but only transitory enemies. War in his estimation is sometimes inevitable, but he does not consider it a necessary element in the structure of his reputation. He considers that it is under the shade of peace alone that those arts can prosper which he loves, that industry which he encourages, and most especially agriculture, which for so great a length of time has required those gentle and wisely calculated reforms, which war must make impossible.

Your flatterers perhaps will tell you that this is your portrait. Your friends, that I have cast your horoscope, founded indeed upon presumption, but which it is requisite you should justify in order to deserve the gratitude of your country, and the eulogy of posterity.

TRAVELS IN SWITZERLAND,

AND IN

THE COUNTRY OF THE GRISONS :

IN A SERIES OF LETTERS

To WILLIAM MELMOTH, Esq.

FROM WILLIAM COXE, M.A. F.R.S. F.A.S.

RECTOR OF BEMERTON *.

TO THE COUNTESS OF PEMBROKE AND MONTGOMERY.

MADAM,

THESE Letters, relating to Switzerland, naturally claim your Ladyship's protection ; for they were originally written while I had the honour of accompanying Lord Herbert on his travels. I feel myself highly flattered, therefore, in having the permission of inscribing them to your Ladyship, and of thus publicly acknowledging that I am, with great respect, and gratitude for obligations received from the Earl of Pembroke and your Ladyship,

MADAM,

Your Ladyship's most obedient and obliged humble servant,

Vienna, June 26, 1778.

WM. COXE.

. PREFACE TO THE EDITION OF 1789.

TEN years have elapsed since I gave to the Public a volume of Letters, under the title of "*Sketches on the Natural, Civil, and Political State of Switzerland.*" The favourable reception of that work induced me, in 1779, to make a journey through the country of the Grisons, a part of Switzerland hitherto little known. Having, in 1785 and 1787, opportunities of revisiting the same spots which I had before described, I was anxious to revise and augment my former publication. With this view I compared my descriptions at the very places which I attempted to delineate ; attentively perused the criticisms of succeeding travellers ; and in many of the principal towns I entreated several persons, of political or literary eminence, to correct any errors, or to suggest any improvement, with respect to those particular parts, with which, from situation, they were most conversant.

The materials collected from these and other sources, increased by my own observations and researches, encourage me to hope, that the present improved account of so interesting a country as Switzerland, will not be unacceptable to the public, and may be considered as a new work.

Bemerton, Feb. 20, 1789.

LETTERS, &c.

LETTER I.—*Route through the Black Forest.—Source of the Danube.*

DEAR SIR,

Doneschingen, July 21, 1776.

I AM now at Doneschingen, in my way towards Switzerland, a country long celebrated for the peculiarities of its different governments, and the singular beauties conferred upon it by nature. If it will not be trespassing upon your patience, I propose to trouble you with some account of my tour, for I am persuaded that I shall travel with much greater profit to myself; as the reflection that my observations are to be communicated to you, will render me more attentive and accurate in forming them.

We quitted Straßburgh yesterday, and crossed the Rhine to Kehl, formerly an important fortress belonging to Straßburgh when an imperial city. It was also strongly fortified by the French, who took possession of it in 1648: being ceded to the empire at the peace of Ryswic, the Emperor consigned it to the house of Baden, reserving to himself the right of a garrison. Since that period it has been twice attacked by the French, and as during the last siege, in 1733, the works were considerably damaged, the imperial garrison has been withdrawn. At present there are only the ruins of the ancient fortifications; and by way of garrison, a few invalids belonging to the Margrave of Baden. From Kehl we proceeded to Offenburgh, a small imperial town, and soon after entered the beautiful valley of Kinzing: we passed through Gengenbach, another small imperial town, finely situated, and continued our journey by the side of the small river Kinzing; rising gradually for several leagues together, until we found ourselves in the midst of the Black Forest. The country, as we ascended, became more wild and romantic, and the river more rapid; on each hand mountains, whose acclivities were finely cultivated, and whose tops were richly covered with a continual forest. Several small streams of the clearest water rolled down the sides of the mountain in numberless cascades, and uniting fell into the Kinzing. The views were so exceedingly diversified, the villages so delightfully situated, and the cottages so exceedingly picturesque, that we almost seemed to have anticipated the romantic beauties of Switzerland.

Doneschingen is the principal residence of the Prince of Furstenberg, in the courtyard of whose palace the Danube takes its rise. I am this moment returned from visiting the spot, the description of which may be comprised in a few words. Some small springs bubbling from the ground form a basin of clear water, of about thirty feet square; from this basin issues the Danube, which is here only a little brook. And though the two small rivers of Bribach and Brege, uniting below the town, are far more considerable than this stream, which flows into them soon after their junction; yet the latter alone has the honour of being called the source of the Danube. Having gone through the ceremony of striding across the stream, in order to say that we had *stepped* over the Danube, we soon satisfied our curiosity; the object in itself being by no means extraordinary, but deriving its sole consideration from being the source of so noble a river. Indeed it was this circumstance alone that induced us to enter Switzerland by the way of Suabia.

I am, dear Sir, very affectionately yours,

WILLIAM COXE.

LETTER II.—*Arrival in Switzerland.—Schaffhausen.—Fall of the Rhine.**Schaffhausen, July 22.*

I FEEL great delight in breathing the air of liberty : every person here has apparently the mien of content and satisfaction. The cleanliness of the houses, and of the people, is peculiarly striking; and I can trace in all their manners, behaviour, and dress, some strong outlines which distinguish this happy people from the neighbouring nations. Perhaps it may be prejudice and unreasonable partiality ; but I am the more pleased, because their first appearance reminds me of my own countrymen, and I could almost think for a moment that I was in England.

Schaffhausen, a tolerably well-built town, situated upon the northern shore of the Rhine, is the capital of the canton, and owes its origin to the interruption of the navigation of that river by the cataract at Lauffen : huts being at first constructed for the convenience of unloading the merchandize from the boats, by degrees increased to a large town. Schaffhausen was formerly an imperial city, and governed by an aristocracy ; but it was mortgaged in 1330, by the Emperor Louis of Bavaria, to the Dukes of Austria, and was released from its dependency by the Emperor Sigismund when Frederick Duke of Austria was put under the ban of the empire. In 1501 it was admitted a member of the Helvetic confederacy ; and is the twelfth canton in rank. Of all the cantons it is the least in size, being only five leagues in length, and three in breadth : its population is supposed to amount to thirty thousand souls, of which the capital contains about six thousand.

The whole number of citizens or burgeses (in whom the supreme power ultimately resides) is about sixteen hundred. They are divided into twelve tribes ; and from these are elected eighty-five members, who form the great and little council. To these two councils combined, the administration of affairs is committed : the senate, or little council of twenty-five, being entrusted with the executive power ; and the great council, comprising the senate, finally deciding all appeals, and regulating the more important concerns of government.

The revenues of the state are very inconsiderable, as will appear from the salary of the burgomaster, or chief of the republic ; which barely amounts to 150*l. per ann.* The reformation was introduced in 1529 : the clergy are paid by the state, but their income is scarcely sufficient for their maintenance ; the best living being only about 100*l.*, and the worst 40*l. per ann.* The professors of literature also, who are taken from the clergy, are paid by government ; and a school is supported at the public expence. Sumptuary laws are in force here, as well as in most parts of Switzerland ; and no dancing is allowed, except upon particular occasions. The principal article of exportation is wine, of which a large quantity is made, the country abounding in vineyards : and as the canton furnishes but little corn, it is procured from Suabia in exchange for wine. In the town there are a few manufactures of linen, cotton, and silk.

It will perhaps give you some idea of the security of the Swiss republics, when I inform you that Schaffhausen, although a frontier town, has no garrison, and that the fortifications are but weak. The citizens mount guard by turns ; and the people of the canton being divided into regular companies of militia, which are exercised yearly, are always prepared to act in defence of their country. This canton has some troops in France, Sardinia, and Holland ; the only foreign services into which the subjects of the Protestant cantons enlist.

Before

Before I take leave of this town, I must not omit mentioning the bridge over the Rhine, justly admired for the singularity of its architecture. The river is extremely rapid, and had already destroyed several stone bridges of the strongest construction; when a carpenter of Appenzel offered to throw a wooden bridge, of a single arch, across the river, which is near four hundred feet wide. The magistrates, however, required that it should consist of two arches, and that he should for that purpose retain the middle pier of the old bridge. The architect was obliged to obey; but he has contrived to leave it a matter of doubt, whether the bridge derives any support from the middle pier; and whether it would not have been equally safe if formed solely of one arch.

It is a wooden structure, and is what the Germans call a *hangewerk*, or hanging bridge; the sides and top are covered; the road, which is almost level, is not carried, as usual, over the top of the arch, but is let into the middle, and there suspended. The pier is not in a right line with the buttresses, as it forms an obtuse angle pointing down the stream, being eight feet out of the rectilinear direction. The distance of this middle pier from the shore next to the town is a hundred and seventy-two feet, and from the other side a hundred and ninety-three; in all, three hundred and sixty-five feet; making in appearance two arches of a surprising width, and forming a beautiful perspective when viewed at some distance. A man of the slightest weight feels it almost tremble under him; yet waggons heavily laden pass without danger. It has been compared to a tight rope, which trembles when struck, but still preserves its firm and equal tension. I went under this bridge to examine its mechanism, and was pleased with the simplicity of the architecture: I was not capable of determining whether it rests upon the middle pier, but many judges affirm that it does not.

On consulting the greatness of the plan, and the boldness of the construction, it is matter of astonishment that the architect was originally a carpenter, without the least tincture of literature, totally ignorant of mathematics, and not versed in the theory of mechanics. The name of this extraordinary man was Ulric Grubenman, a native of Tuffen, a small village in the canton of Appenzel. Possessed of great abilities, and a surprising turn for the practical part of mechanics, he raised himself to great eminence; and may justly be considered as one of the most ingenious architects of the present century. The bridge was finished in less than three years, and cost ninety thousand florins*.

This

* About 8000l. sterling.—Mr. Andrew, in his *Letters upon Switzerland*, has given two engravings of this bridge, to which he has added a very accurate description of its mechanical construction, communicated by Mr. Jetzler, of Schaffhausen. In this description he represents it as consisting of two arches, and resting upon the middle pier. Several persons well skilled in architecture maintained a contrary opinion; and in the former editions I was induced to adopt it, from the following reasons. The architect himself constantly maintained that the bridge was not supported by the pier; his nephew, who was employed in its construction, confirmed the same assertion; and as at first it did not even touch the pier, it must therefore, at that time, have been considered as forming but one arch. I must, however, candidly own, that in my subsequent visits to Schaffhausen in 1785 and 1786, I had reason to change my opinion. At those periods the bridge was supported on piles, in order to undergo a thorough repair. Mr. Spengler, a native of the town, had lately returned from Russia, where he had passed many years in the capacity of an architect, fortunately discovered that much ill-seasoned wood having been employed in its construction, many of the timbers were absolutely decayed; and that one side had greatly swerved from its original direction. This ingenious artist, after having expatiated on the simplicity and boldness of the design, informed me that the bridge undoubtedly consists of two arches; and that although Grubenman, of whose abilities he spoke with deserved encomium, affected to place the timbers in such a manner as to resemble but one arch, and always asserted that it was not supported by the pier; yet that the whole fabric would undoubtedly have fallen, if that pier had been taken away. He obligingly shewed me his plan for repairing the bridge, and for strengthening it

This morning we rode about a league, to the Fall of the Rhine at Lauffen. Our route lay over the hills which form the banks of the river: the environs are picturesque and agreeable, the river beautifully winding through the vale. Upon our arrival at Lauffen, a small village in the canton of Zurich, we dismounted, and advancing to the edge of the precipice which overhangs the Rhine, looked down perpendicularly upon the cataract, and saw the river tumbling over the sides of the rock with amazing violence and precipitation. From hence we descended till we were somewhat below the upper bed of the river, and stood close to the fall, so that I could almost have touched it with my hand. A scaffolding is erected in the very spray of this tremendous cataract, and upon the most sublime point of view: the sea of foam rushing down; the continual cloud of spray scattered to a great distance, and to a considerable height; in short, the magnificence of the whole scenery far surpassed my most sanguine expectations, and exceeds all description. Within about an hundred feet of the scaffolding, two crags rise in the middle of the fall: the nearest is perforated by the continual action of the river, and the water forces itself through in an oblique direction with inexpressible fury, and an hollow sound. Having contemplated the awful sublimity of this wonderful landscape, we descended and crossed the river, which was extremely agitated.

Hitherto I had only viewed the cataract obliquely; but here it opened by degrees, and displayed another picture, which I enjoyed at my leisure, as I sat down on the opposite bank. The most striking objects were, the castle of Lauffen, erected upon the very edge of the precipice, and projecting over the river; near it, a church and some houses; a clump of cottages close to the fall; in the back ground, rocks planted with vines, or tufted with hanging woods; a beautiful little hamlet upon the summit, skirted with trees; the great body of water that seemed to rush out from the bottom of the rocks; the two crags boldly advancing their heads in the midst of the fall, and in the very point of its steepest descent, their tops feathered with shrubs, and dividing the cataract into three principal branches. The colour of the Rhine is extremely beautiful, being of a clear sea-green, and I remarked the fine effect of the tints, when blended with the white foam in its descent. There is a pleasing view from an iron foundery, close to the river, which is dammed up, in order to prevent its carrying away the works and neighbouring cottages: by means of this dam a small portion of the river is diverted, turns a mill, and forms a little silver current, gliding down the bare rock, and detached from the main cataract. Below the fall the river widens considerably into a more ample basin; at the fall, the breadth seemed to be about three hundred feet. With respect to its perpendicular height, travellers differ: those who are given to exaggeration reckon it a hundred feet; but I should imagine about fifty or sixty feet will be nearer the truth. I stood for some time upon the brink of the cataract, beheld with admiration, and listened in silence; then crossed the river, remounted my horse, and returned to Schaffhausen.

Some writers have asserted that the Rhine precipitates itself in one sheet of water, and, as I before observed, from a perpendicular height of a hundred feet. In former ages this might be the fact; as it is probable that the space between the banks was once a level rock, and considerably higher, and that the river has insensibly undermined those parts on which it broke with the utmost violence; for, within the memory of

it by means of additional timbers, in order to render it able to support its own weight, when the piles should be removed.

Vid Briefe aus der Schweiz nach Hannover geschrieben. Zurich, 1776.

This bridge was destroyed by the French in 1799, when they were driven from Schaffhausen by the Austrians.

several

several inhabitants of this town, a large rock has given way, that has greatly altered the view. Indeed, I am convinced that the perpendicular height of the fall diminishes every year, by the continual friction of so large and rapid a body of water, and have no doubt but that the two crags which now rise in the midst of the river, will in time be undermined and carried away. The Rhine, for some way before the fall, even near the bridge, dashes upon a rocky bottom, and renders all navigation impossible.

I am, &c.

LETTER III.—*Isle of Reichenau.—Constance.—Genevan establishment.—Isle of Meinau.—Lake of Constance.*

Constance, July 24.

YESTERDAY morning we quitted Schaffhausen, and crossed the Rhine at Dieffenhoffen, a small town in Thurgau; a country dependent upon the eight ancient cantons: from thence to Stein the road lay by the side of that river. Stein is an independent town under the protection of Zurich, but governed by its own laws and magistrates. At this place we took a boat to carry us to Constance. A little above Stein the river widens considerably, and forms the inferior lake of Constance, or the *Zeller See*; which is divided into two branches: from Stein to Constance is about sixteen miles, and from the latter to Zell, its greatest breadth, about ten.

A fine breeze soon carried us to the island of Reichenau, which belongs to the Bishop of Constance: it is about three miles long, and one broad; contains about sixteen hundred inhabitants, all Catholics, three parishes, one village, and a rich abbey of Benedictines, of which the Bishop of Constance is abbot. The superior was exceedingly civil, and shewed us all the relics and curiosities of the convent: among the latter was a curious tooth of Charles le Gros. That monarch, who was Emperor and King of France, and who possessed dominions as extensive as those of Charlemagne, lived to want the common necessities of life, and to depend for his subsistence upon the charity of an Archbishop of Mentz. He was publicly deposed in 887, at a meeting of the principal French, German, and Italian barons, whom he himself had summoned: after having languished a year in extreme want and misery, he died at a small village near Mentz, in Germany, and his remains were conveyed to this convent. The next remarkable curiosity was an emerald, as it is called, of an extraordinary size, which, according to the annals of the convent, was a present from Charlemagne. Take its dimensions, and then judge whether it can be an emerald: it has four unequal sides, the longest is near two feet, and the broadest about nine inches it is one inch thick, and weighs about twenty-nine pounds. The superior valued it at £4500; but if it is, as I conjecture, nothing more than a transparent green *spathfluor*, its value will be reduced to a few shillings. Upon our return to the inn where we dined, we found a present from the superior, more valuable to us than all the relics and curiosities of his convent; two bottles of excellent wine, the growth of the island, which is almost a continued vineyard.

In the evening we arrived at Constance; the situation of which upon the Rhine, between the two lakes, is most delightful. I was much affected with the solitary appearance of a town once so flourishing in commerce, and so celebrated in the annals of history. A dead stillness reigns throughout; grass grows in the principal streets; in a word, it wears the melancholy aspect of being almost totally deserted, and scarcely contains three thousand inhabitants. This city has endured a sad reverse of fortune: it was formerly in alliance with Zurich and Basle, and supported by their assistance, expelled the

the bishop, and embraced the reformation. But the Protestant cantons being worsted in 1351; and the league of Sinalcade, of which Constance was a member, being defeated by Charles V., the town was obliged to submit to the Emperor, and re-admit the Catholic religion. From this period it lost its independence, and, being neglected by the House of Austria, fell by degrees into its present state; exhibiting to some of the neighbouring Swiss cantons, an instructive contrast, which must sensibly endear to them their own invaluable happiness, in the commerce and liberties which they enjoy.

We paid a visit to the chamber where the council of Constance was held in 1415, and had the honour of sitting in the two chairs, in which sat Pope John XXIII. *, and the Emperor Sigismond; if any honour can be derived from a turbulent ecclesiastic, and a perjured sovereign. By a sentence of this council, the celebrated reformer John Hufs, trusting to the protection of the Emperor, who violated his word, was burnt as an heretic. The house is still shewn where he was seized; upon the walls is his head, carved in stone, but now almost defaced; with an inscription under it in German. Jerome of Prague, his disciple, had the weakness to recant before the same council; but this weakness was amply compensated by the greatness of soul with which he again retracted this recantation, and by the calm and intrepid magnanimity which he displayed in his last moments at the stake. From the top of the cathedral we had a superb view of the town, and of the two lakes; with the rugged Alps of Tyrol and Appenzel, their tops covered with perpetual snow.

Constance may again become a commercial town, through the permission granted by the Emperor to the emigrants from Geneva, of settling and carrying on their trade and manufactures, with very considerable privileges. Messrs. Roman and Meilly, watchmakers of Geneva, were the first persons, whom the troubles of their native republic drove to Constance. They received from the Emperor the following immunities for themselves and countrymen:

The right of purchasing or building houses; free exercise of religion, entirely independent of the Catholic clergy; the power of erecting a tribunal for the purpose of deciding all affairs relative to their manufactures and commerce; exemption from serving in the militia and quartering soldiers, from all contributions during the space of twenty years, from duties on their tools and utensils; the standard of the gold and silver employed in their manufactures to be invariably fixed. These favourable terms, signed on the 30th of June 1785, attracted so many settlers to Constance, that, in my second visit to this place, on the 25th of October 1787, the new colony of Genevans consisted of seventy families, comprising three hundred and fifty persons; among these were fifty-four watchmakers, who had introduced the different branches of manufacture which belong to their trade. Four hundred watches were already finished, and above fourteen hundred more were preparing.

The Emperor has also granted to Mr. Macaire the convent of Dominicans lately secularized, towards establishing a manufacture of printed linens and cottons. The refectory is appropriated for the chapel of the new colony.

I did not omit visiting a small dungeon, about eight feet long, six broad, and seven high, in which John Hufs was confined, wherein I observed the very stone to which he had been chained. I entered it however with very different sensations from those which I experienced in 1776, when this convent was the asylum of monkish superstition. It is now the seat of trade and industry; and it must suggest a pleasing reflection to a philosophic mind, that a successor of Sigismond, who violated his word, should have

* He was deposed in this council.

consigned to a reformed establishment that very convent in which the Bohemian divine was imprisoned, and from which he was led to the stake, and that the most enlarged principles of toleration should be manifested in the same spot, where persecution was inculcated by precept and example. It is the triumph of reason and religion over bigotry and intolerance.

I am just returned from a pleasant expedition to the small island of Meinau, in a bay of the superior lake: this island, about a mile in circumference, belongs to the knights of the Teutonic order. The bailiff shewed us the house of the commander, which is prettily situated, and has a fine prospect of the lake, but contains nothing remarkable except the cellars, which are well stocked with wine; an article from which the chief revenue of the commandery arises. Our good friend the bailiff was very free in offering it; and we, not to appear insensible of his civility, were constrained to taste several different sorts, which he successively presented, always praising the last as the oldest and most exquisite. The wine was indeed excellent, the glasses large, and a formidable row of enormous casks still remained untasted; so that, after having duly extolled several specimens, we found it expedient to decline the farther solicitations of our generous host: for, had we performed the whole ceremony, we must have taken up our abode in the castle for the night.

July 25.

We set sail about two hours ago from Constance. This superior lake, or, as it is sometimes called, the *Boden See*, is about fifteen leagues in length and six in its greatest breadth: it is one of the great boundaries that separate Switzerland from Germany. The borders consist of gently rising hills; on the left hand Suabia, and on the right Thurgau, with a variety of scattered towns, villages, and monasteries: the form of the lake inclines to an oval, and the water is of a greenish hue. I am now writing aboard the vessel, and have been for some time in vain attempting to distinguish (what some travellers have affirmed to be discernible) the waters of the Rhine from those of the lake. The river in its course from the superior lake, being exactly of the same beautiful greenish colour as the inferior lake into which it flows, it is evident that the one can never be distinguished from the other. Probably upon its first entrance into the superior lake it is troubled, and consequently, for some way, its current may easily be traced: but it purifies by degrees, and becomes an indistinct part of the great body of water.

This lake, like all the other lakes of Switzerland, is considerably deeper in summer than in winter; a circumstance owing to the first melting of the snow from the neighbouring mountains: it abounds in fish of various sorts. Yesterday evening, in our expedition to Meinau, there was scarcely a breeze stirring, and the lake was as smooth as chrystal: a brisk gale has now raised a fine curl upon the surface, and the surrounding landscape forms an assemblage of the most beautiful objects. In short, the several views which present themselves are so truly enchanting, as to make me regret every moment that my eyes are called off from the delightful scenes. You will not wonder therefore, if I am tempted to bid you adieu somewhat abruptly.

Yours, &c.

P.S. The following description of the great trout which frequents all the Swiss lakes, but more particularly abounds in the lake of Constance, was communicated by Thomas Pennant, Esq. This species of trout is called in this neighbourhood *Illankin*, and by Linnæus, *Salmo Lacustris*. The head is conical, and larger in proportion than that of a salmon. The dorsal fin has twelve rays; pectoral, fourteen; ventral and anal, twelve each. The under jaw, in full grown fish, ends in a blunt hook. The colour, as low

as the lateral line, of a deep blue, brightening as it approaches the line, beneath that of a silvery white; all the upper part is spotted irregularly with black. This kind grows to the weight of forty or forty-five pounds.

These fishes quit the deeps of the lake in April, and go up the Rhine to deposit their spawn. The inhabitants of the shores form weirs across the river, in which they take them in their passage. They are also caught in nets. The fishery lasts from May to September; the fishermen avoid taking any on the return, as they are then very lean and quite exhausted. In spring and summer their flesh is of a fine red, and very delicate; but, after they have spawned, it turns white, and becomes very indifferent. They feed on fish, worms, and insects, and are particularly destructive to the graylings. Their great enemy is the pike, which will attack an illankin four times as large as itself. For a further account, the reader may consult the elegant *Icthyologie* by Mr. Block, vol. iii. p. 155, who is the first naturalist that has given a satisfactory account of this gigantic species.

LETTER IV.—*St. Gallen.—Canton of Appenzel.*

July 26.

I WRITE to you from the midst of the Alps, under the shade of a grove of beeches, while a clear stream of water, flowing at my feet, forms a natural cascade down the rock. I have just made a hearty meal upon some bread and cheese; a most delicious repast, after walking six miles over the mountains of Appenzel.

We this day quitted St. Gallen, and walked to Appenzel. The country is singularly wild and romantic; consisting of a continued series of hills and dales, vallies and mountains, the tops of which are crowned with most luxuriant pastures. I could not have conceived it possible, without having been an eye-witness, that any district within the same compass could have exhibited so numerous a population; the hills and vales being thickly strewed with hamlets, scattered at a small distance from each other. The picturesque mountains, the forests, the currents which we crossed, over bridges resembling those I have observed in some of the best landscapes, added to the beauty of the scenes, and diversified every step with the most pleasing objects. After having reposed for a short time in this delightful spot, I cannot employ myself more to my satisfaction than by continuing my journal.

In my last letter I took my leave of you upon the lake of Constance: we landed at Roshach, a small burgh in the dominions of the Abbot of St. Gallen, agreeably situated in the midst of a bay at the edge of the lake, and at the bottom of a rising hill, richly covered with wood and pasturages. From Roshach we went to St. Gallen, the whole territory whereof does not exceed a mile and a half in circumference; and including the town contains near eight thousand inhabitants. Every thing was alive; all persons wore the appearance of industry and activity; exhibiting a striking opposition to Constance, which we had just quitted*.

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* The subjects of the Abbot of St. Gallen amounted to not less than 90,000. His dominions comprised, first, the ancient territory of the abbey (*Alte Landschaften*); secondly, the country of Tockenburgh. That county was purchased in 1468, by Ulric Abbot of St. Gallen, from the last count, who died without issue male. As the people possessed very considerable privileges, and the Abbot was desirous of extending his prerogatives, frequent disputes arose, which increased after the reformation, when part of the inhabitants embraced the Protestant doctrines. These disputes were frequently renewed; the Abbot was supported by the Catholic, the people by the Protestant cantons; and in 1709 a civil war broke out in Switzerland, which is usually called the war of the Tockenburgh, and was terminated in 1712 by the pacification of Arau. In

The Abbot and town of St. Gallen are both allies of the Swiss cantons, and each enjoys the privilege of sending deputies to the general diet. The Abbot of St. Gallen is titular prince of the German empire, and is chosen by the seventy-two Benedictines, who compose this chapter. He formerly possessed the sovereignty of the town, but the inhabitants shook off his authority, and became independent: the various disputes which since that period have arisen between the two rival parties, have been compromised by the interposition of the Swiss cantons. The town is entirely Protestant, and its government aristo-democratical; the subjects of the Abbot (whose territory is very extensive) are mostly Catholics. It is remarkable, that the abbey in which the prince resides is situated close to the town, and in the midst of its territory; as the town is also entirely surrounded by the possessions of the prince.

The town owes its flourishing state to the uncommon industry of the inhabitants, and to a very extensive commerce, arising chiefly from manufactures of linen, muslin, and embroidery. In a place so entirely commercial, I was astonished to find the arts and sciences cultivated, and literature in high esteem. In the library there are thirteen volumes in folio, containing manuscript letters of the first German and Swiss reformers. Luther ends a letter to Melancthon as follows:

Pessis eram vivus, moriens ero mors tua, Papa.

These letters would probably throw much light on the history of the reformation.

The library belonging to the abbey is very numerous and well arranged; and, among a number of monkish manuscripts, contains several of the classic writers, which engaged my chief attention. To this library we owe Petronius Arbiter, Silius Italicus, Valerius Flaccus, and Quintilian, copies of which were found in 1413; it was formerly very rich in curious manuscripts, but several being borrowed during the council of Constance by the cardinals and bishops, were never returned.

The transition from the Abbot of St. Gallen to the canton of Appenzel will not appear abrupt, as Appenzel once belonged to the abbot: the inhabitants, however, being loaded with exorbitant and oppressive taxes, revolted in 1400, and maintained their independence with the desperate courage of a spirited people, who fight for their liberties. In 1452 they entered into a perpetual alliance with some of the neighbouring Swiss republics, and in 1513 were admitted into the Helvetic confederacy: they hold the last rank among the thirteen cantons.

Before the reformation the whole canton was under one government; but since that period, part of the inhabitants having embraced the Protestant religion, and the other part continuing Catholics, violent disputes were kindled between them, which, after much contest, were at length compromised. By an agreement in 1597, the canton was

In 1718 the constitution of the Tockenburg was settled, in which the prerogatives of the Abbot and the privileges of the people were precisely ascertained. Still, however, the opposite pretensions of the Abbot and the people produced occasional disputes, and in the effervescence of the revolution the inhabitants vied with the Basilians, and the borderers of the lake of Zurich, in their early demands of emancipation. They rose in January, paid the sum of 14,500 florins, the original purchase money, to the bailiff, drove him from the country, planted trees of liberty in different parts of the district, and even in the midst of the abbey. On the 31st January the Prince Abbot quitted St. Gallen, and took refuge in the Brisgau.

In the new divisions of Switzerland, the dominions of the Abbot and the town of St. Gallen are comprised in the canton of Sentis, of which St. Gallen is the capital.

The people soon found the difference between their new and ancient rulers; for in the month of May they were so dissatisfied with their government, that the French were obliged to send troops into the country to quell an insurrection.

divided into two portions, *Rhodes Exterior*, and *Rhodes Interior*; it was stipulated, that the former should be appropriated to the Protestants, and the latter to the Catholics. Accordingly the two parties separated, and formed two republics; their government, police, and finances, being totally independent of each other. Each district sends a deputy to the general diet; the whole canton however has but one vote, and loses its suffrage if the two parties are not unanimous. In both divisions the sovereign power is vested in the people at large; every male who is past sixteen having a vote in their general assembly, held yearly for the creation of their magistrates and the purposes of legislation, and each voter is obliged to appear armed on that particular occasion. The Landamman is the first magistrate; in each district there are two, who administer the office alternately, and are confirmed yearly. They have each a council, which possesses jurisdiction in civil and criminal causes, has the care of the police, the management of the finances, and the general administration of affairs. The Landamman regent presides; and the other, during the year in which he is out of office, is banneret, or chief of the militia.

The *Rhodes Exterior* is much larger, and more peopled in proportion than the *Interior*, and the Protestants are in general more commercial and industrious than the Catholics. The Protestants are supposed to amount to thirty-seven thousand; the Catholics to twelve thousand: an extraordinary number in so small a canton, entirely mountainous, and of which a great part consists of barren and inaccessible rocks. But the industry of the inhabitants amply compensates for any disadvantages of soil: for, the people are frugal and laborious; their property is secured, and they are exempted from all burdensome and arbitrary taxes. These circumstances, joined to the right of partaking of the legislation, and of electing their magistrates, inspire them with such animated sentiments of their own importance and independence, as excite the most active and vigorous industry, and those necessities to which this industry is not sufficient, are abundantly supplied by their neighbours, in exchange for manufactures and other articles of domestic commerce. The chief part of the habitable country consists of rich pastures, and of course their principal exports are cattle and hides, together with cheese and butter. Their manufactures are coarse callicots and muslins in great quantities, which are entirely made in the houses of the inhabitants. The cotton is spun with the common wheel. The web is bleached at home, and afterwards sent to be printed in the neighbourhood of Neuchatel. The greatest bleachery I saw in the Alps was near Appenzel, which extended over three or four acres of ground. Part of the river Sittler is diverted to turn the mill, which is of the simplest construction. A large wheel on the outside works a long cylinder within, on which are fixed a number of cogs to raise the hammers which beat the webs. In the same place are the boilers and other conveniences for the business.

The only mills for spinning the cottons by water which I observed in Switzerland, were near Neuchatel and Geneva; but greatly inferior in size and ingenuity of machinery to those of England.

The flourishing state of the cotton manufactory has rendered many persons in the Protestant districts easy in their circumstances, and even wealthy; if wealth is estimated from the general state of the natives, and not from the comparative view of distant and greater opulence in large commercial cities. The villages of Trogen and Undevil announce, by their superior neatness, the well-being of their inhabitants.

This canton contains no inclosed towns, but only two or three open burghs, of which Appenzel is the largest in the Catholic, Trogen, Undevil, and Herisau in the Protestant district, and a few villages; indeed the whole country, except amongst the barren
rocks,

rocks, is almost a continued village, being thickly covered with excellent cottages. Each cottage has its little territory, or a field or two of fine pasture ground, which are frequently skirted with trees. The mountains are for the most part beautifully wooded; and the canton is supplied with water in such exuberance, that we could hardly walk two hundred paces without seeing a spring bubble from the ground, or a torrent rush down the sides of a rock.

In our way to Appenzel we entered several houses, which were all built of wood; neatness and convenience being the principal object of the owners: such a remarkable cleanliness prevailed throughout, as afforded a most striking proof of the general attention which the people pay to that essential article. A continued chain of these cultivated mountains, richly clothed with wood, and thickly studded with hamlets, which appear to have been placed by the genius of taste in the very spots where they would form the most striking effect, exhibit a series of landscapes inexpressibly pleasing: it seemed as if they belonged to independent clans; independent but social, uniting for the great purposes of legislation, and for the general preservation of their liberties.

Among the chief part of the inhabitants, the original simplicity of the pastoral life is still preserved; and I saw several venerable figures with long beards, that resembled the pictures of the ancient patriarchs. The natives of this canton, in common with the inhabitants of democracies, possess a natural frankness, and peculiar tone of equality, which arise from a consciousness of their own independence. They also display a fund of original humour, and are remarkable for great quickness of repartee, and rude sallies of wit, which render their conversation extremely agreeable and interesting.

In our way to Appenzel we passed through Tuffen, the birth-place of Ulric Grubenman, whom I mentioned in a former letter*: he has been dead some years, but his abilities and his skill in practical architecture are, if I may use the expression, hereditary in his family. We enquired for one of the same name, who was either his brother or his nephew, whom we found at the alehouse. He is a heavy, coarse-looking man, dressed like a common peasant, has a quick and penetrating eye, and great readiness of conversation. We told him that we were Englishmen, who were making the tour of Switzerland; and that we could not pass through Tuffen without desiring to see a man who was so much celebrated for his skill in architecture. He struck his breast, and replied in German, "Here you see but a boor." Upon our talking with him about the bridge of Schaffhausen, in the building of which he was employed, he assured us, that it does not rest upon the middle pier, but is in reality a single arch. Near Appenzel we observed an old man with venerable white hair hanging over his shoulders, who looked like a substantial farmer: he enquired with a tone of authority, but with perfect civility, who we were, and, upon our asking the same question respecting himself, our guide informed us, that he was the *Landamman*, or chief of the republic. Happy people, the nature of whose country, and the constitution of whose government both equally oppose the strongest barrier against the introduction of luxury!

Doctor Girtanner, of St. Gallen, found in great abundance, on the top of the Appenzel mountains, the *Draba Pyrenaica* of Linnæus, not mentioned by Haller, in his catalogue of the Swiss plants.

Appenzel, July 27.

Your, &c.

* See page 643.

LETTER V.—*Valley of the Rhine.—The Lake and Town of Wallenstadt.**Salets, July 27.*

WE are this moment arrived at the village of Salets, where we propose passing the night: while supper is preparing, I will continue my journal. We could procure but three horses at Appenzel, and as one of them was appropriated to the baggage, I preferred walking. After having traversed a league in the canton, over a continued range of mountains, enriched with beautiful meadows, and dotted with cottages, I reached its boundary; here the scene changed into a wild forest of firs and pines, without the least appearance of any habitation. The road is scarcely more than three feet broad, and is either paved with large uneven pieces of rock, or formed of thick stakes laid closely together; but as the ground is in many parts softer than in others, these stakes in some places sink deeper, and form a succession of uneven steps. The mountain by which we descended into the plain is very steep; which circumstance, added to the unevenness of the stakes, makes the ascent and descent exceedingly difficult for horses. Those who are pleased with an uniform view, may continue in the plain; while others, who delight in the grand and the sublime, and are struck with the wantonness of wild, uncultivated nature, will prefer this road to the smoothest turnpike in Great Britain.

I walked slowly on, without envying my companions on horseback; for I could sit down upon an inviting spot, climb to the edge of a precipice, or trace a torrent by its sound. I descended at length into the *Rheinthal*, or Valley of the Rhine; the mountains of Tyrol, which yielded neither in height or in cragginess to those of Appenzel, rising before me. And here I found a remarkable difference: for although the ascending and descending was a work of some labour; yet the variety of the scenes had given me spirits, and I was not sensible of the least fatigue. But in the plain, notwithstanding the scenery was still beautiful and picturesque, I saw at once the whole way stretching before me, and had no room for fresh expectations; I was not therefore displeased when I arrived at Oberriede, after a walk of about twelve miles, my coat slung upon my shoulder like a peripatetic by profession. Here we procured a narrow cart; in which, the roads being rough and stony, you will readily believe we were not much at our ease. The evening however being fine, and the moon exceedingly bright, our journey was not altogether disagreeable; as it led us through a delightful country abounding in vines, fruit-trees, flax, and pasturage.

The Rheinthal is a bailliage belonging to Appenzel and the eight ancient cantons, which alternately appoint a bailiff. The people are of both religions, but the Protestants are the most numerous.

Wallenstadt, July 28.

WE quitted Salets this morning, in the same cart in which we arrived, and it would have afforded matter of some speculation to observe how we contrived to arrange ourselves, our servants, a large Newfoundland dog, and the baggage, in so narrow a compass: indeed we were so wedged in that, after we had fixed ourselves in our several places, it was almost impossible to stir. The day was sultry, the road bad, and the cart went barely at the rate of three miles an hour; but the country still continued so picturesque and mountainous, and our attention was so entirely engaged with the perpetual variety of objects presented to our view, as to make us forget the inconveniences of our equipage, and the excessive heat of the weather. From Trivabach, a small village upon

the Rhine, we walked to Sargans, the capital of a bailliage of the same name, belonging to the eight ancient cantons.

Let me here remark, that in Switzerland there are two sorts of bailliages : the one consisting of certain districts, into which all the aristocratical cantons are divided ; and over these a particular officer, called a *bailiff*, is appointed by government, to which he is accountable for his administration ; the other sort are territories belonging to two or more of them, who by turns appoint a bailiff. This officer, when not restrained by the peculiar privilege of certain districts, has the care of the police, jurisdiction in civil and criminal causes with some limitations, and enjoys a stated revenue arising in different places from certain duties and taxes. In case of exaction or mal-administration, an appeal always lies from the bailiff to the cantons, to which the bailliage belongs ; and the place, the time, and the members who receive the appeal, are regulated with the utmost exactness. With respect to this of Sargans, and the others belonging to the eight ancient cantons conjointly ; at the conclusion of the general diet held annually at Frauenfeld in Thurgau, the deputies of these cantons resolve themselves into a syndicate, examine the accounts of the public revenues as delivered by the bailiffs of the respective districts, and receive and judge all appeals ; in some cases finally : but in the more important causes an appeal lies from this assembly to the superior tribunal of each canton.

We arrived late at Wallenstadt, a town incorporated into the bailliage of Sargans, but enjoying several distinct privileges : it derives its existence from the passage of the merchandise transported from Germany through the Grisons to Italy. This communication occasions the frequent resort of Italian merchants ; and that language is understood by many of the inhabitants. Our landlord speaks Italian, and has been very accurate in his answers to my questions relating to the number of inhabitants, the government of the town, its dependance upon the bailiff, and its privileges. Nor is this a matter of wonder : for the innkeepers in Switzerland are mostly *burghers*, and are frequently members of the sovereign council ; and, from the very nature of their governments, the Swiss in general are well informed of their particular constitutions. I have also held a long conversation with a native of Glarus, who has furnished me with much information in relation to that canton, which we purpose visiting to-morrow.

Wesen, July 29.

THE lake of Wallenstadt, about twelve miles in length, and two in breadth, is entirely bounded by high mountains, except to the east and west. From this situation a breeze generally blows from those two quarters, beginning at break of day, and continuing for some hours ; then changes from west to east till sun-set : this breeze is very convenient for the transportation of the merchandise. Sometimes, however, a violent north wind rushes down from the mountains, and renders the navigation dangerous. We were assured by the inhabitants, and by the watermen who rowed us from Wallenstadt to this place, that the breeze above mentioned was generally constant : but we cannot attest it from our own experience, as we set out this morning about eight, and the wind was directly contrary the whole way, blowing from west to east. The weather, it is true, was heavy, overcast, and rainy, which might cause perhaps this occasional variation.

The scenery of the lake is uncommonly wild and picturesque, and affords a perpetual variety of beautiful and romantic scenes. On the side of Glarus, the mountains which form its borders are chiefly cultivated ; enriched with wood or fine meadows, and studded with cottages, churches, and small villages ; the Alps of Glarus rising behind, their tops covered with snow. On the other side, for the most part, the rocks are grotesque, craggy, inaccessible, and perpendicular : but here and there a few cultivated necks of land.

land are formed at the very edge of the lake, and at the bottom of these very rocks, exhibiting a beautiful contrast to the barrenness above and around them. Numberless water falls, occasioned by the melting of the snows, fall down the sides of the mountains from a very considerable height, and with an almost inconceivable variety; some seeming to glide gently in circular directions; others forming vast torrents, and rushing into the lake with noise and violence; all changing their form and their position as we approached or receded from them. The lake is exceedingly clear, deep, and cold, and, as we were informed, is never frozen.

There is nothing remarkable in this place, being a small village situated almost upon the point where the Mat issues from the lake of Wallenstadt: that little river is joined by the Linth, and both united fall, under the name of Limmat, into the lake of Zurich.

I am, &c.

LETTER VI.—*The Canton of Glarus.*

Glarus, July 29.

THE canton of Glarus was formerly subject to the abbess of the convent of Seckingen in Suabia: the people, however, enjoyed very considerable privileges and a democratical form of government, under the administration of a mayor, appointed by the abbess, but chosen among the inhabitants. Towards the latter end of the thirteenth century, the Emperor Rodolph I. obtained the exclusive administration of justice; and not long afterwards his son Albert, having purchased the mayoralty, which had gradually become hereditary, re-united in his person the whole civil and judicial authority. Albert, and his immediate descendants the Dukes of Austria, oppressed the people, and ruled over them with an absolute sway. In 1350, Schweiz, assisted by Zurich, Lucerne, Uri, and Underwalden, expelled the Austrians from the canton of Glarus, and re-established the democracy. Glarus then entered into a perpetual alliance with its deliverers, and was received into the Helvetic confederacy with some restrictions, which were not abolished until 1450. At that time it was the sixth canton, but is now the last in rank of the eight *ancient* cantons, as they are called; being so distinguished, because, from the accession of Zug and Bern in 1352, more than a century elapsed before a new member was admitted. These *ancient* cantons have also several privileges superior to the five others; the latter having submitted to some particular restrictions, upon their reception into the Helvetic league.

The people of Glarus enjoyed their liberties unmolested till 1388, when the Austrians made an irruption into the canton, with a force sufficient, as they arrogantly thought, totally to subdue it, pillaging the country, and massacring the inhabitants. It was then that three hundred and fifty troops of Glarus, assisted by thirty Switzers, resisted the whole strength of the Austrian army: the former were posted advantageously upon the mountains; and the latter, to the number of fifteen thousand, at a village called Næfels. In this situation the Austrians began the attack; but were soon compelled to retreat with great precipitation, by a shower of stones poured upon them from the heights: in this moment of confusion the inhabitants rushed down upon the enemy with redoubled fury, they broke their ranks, and, after an immense slaughter, forced the remainder to retire from the canton. Such surprising victories, gained by a handful of men against an enemy so much superior in number, (instances of which are by no means rare in the history of Switzerland,) render the wonderful combats of Marathon and Plataea, when the Greeks repulsed the numerous hosts of the whole Persian empire perfectly credible. The same love of independence, the same dread of slavery, and the same attachment to
their

their country, animated the respective nations to the same deeds of heroism: in both instances victory was followed by the same glorious consequences; for the Swiss, as well as the Greeks, owe the rise and preservation of their liberties to that magnanimous and determined valour, which prefers death to life under the servile domination of an arbitrary despot. The people still celebrate the anniversary of this victory, which insured their independence, and I saw near the village of Næfels several stones, with no other inscription than 1388; an inscription which no more requires explanation to an inhabitant of the canton, than the glorious æra of 1688 to an Englishman.

In the sixteenth century the reformation was introduced into this canton, but not exclusively: both religions are tolerated, and the two sects live together in the greatest harmony; an union the more remarkable, when we consider the fatal quarrels that have been kindled in Switzerland on account of religious tenets, and that in Appenzel the division between the two sects is distinctly marked by their inhabiting different districts, and living under separate governments. In several parts of this canton, the Protestants and Catholics successively perform service in the same church; and all the offices of state are amicably administered by the two parties. During the present and preceding century, the Protestants have increased considerably in number; and their industry, in every branch of commerce, is greatly superior; an evident proof how much the tenets of the Roman Catholic church fetters the genius, and depresses the powers of exertion.

The government is entirely democratical: every person at the age of sixteen has a vote in the *Landsgemeind*, or general assembly, which is annually held in an open plain. This assembly ratifies new laws, lays contributions, enters into alliances, declares war, and makes peace. The *Landamman* is the chief of the republic, and is chosen alternately from the two sects; with this difference, that the *Protestant* remains three years in office, the *Catholic* only two. The manner of election is as follows: five candidates chosen by the people draw lots for the charge. The other great officers of state, and the bailiffs, are taken also by lot from a certain number of candidates proposed by the people. The executive power is vested in the council of regency, composed of forty-eight Protestants, and fifteen Catholics: each sect has its particular court of justice; and it is necessary that in all law-suits between two persons of different religions, the person having the casting voice among the five or nine judges, who are to determine the cause, should be of the same religion as the defendant.

Cattle, cheese, and butter, constitute the principal commerce of the canton. The cattle are fed in summer upon the Alps: it is computed that ten thousand head of large cattle, and four thousand sheep, are pastured during that season upon the mountains belonging to the canton. The inhabitants also manufacture linen and muslins.

Among the exports a considerable article is slate, with which the canton abounds. The principal quarry is in the valley of Sernft, where large slates are dug up that serve for tables. These quarries, as I am informed by Mr. David Pennant, once furnished Great Britain with slates for writing, or accountants' slates; but this trade is entirely lost. Of late they have been prepared from the great slate quarries in Caernarvonshire, the property of Lord Penryn, and with such success, as bids fair to extend this article of commerce over most part of Europe.

July 30.

I AM just returned to Glarus, after having made an excursion towards the extremity of the canton: it is entirely enclosed by the Alps, except towards the north; and there is no other entrance but through this opening, which lies between the lake of Wallenstadt and the mountains separating this canton from that of Schweitz. Passengers indeed

deed may in summer traverse these Alps to the Grisons on one side, and to Uri on the other; but these paths are in winter absolutely impracticable. At the entrance above-mentioned the canton reaches, from the banks of the Linth to the farthest extremity of its Alps, about thirty miles; forming a valley, which becomes narrower as you advance, and is scarcely more than a musket-shot in breadth at the burgh of Glarus. It afterwards opens by degrees, and about a league from the last-mentioned burgh, is divided by the Freyberg mountains: at the point of this division the two rivers, Linth and Sernft, unite.

We continued through the largest of these vallies, which, though very narrow, is exceedingly populous. You have been at Matlock in Derbyshire, and I remember your admiration of its beautiful and romantic situation: the scenery of this valley is of the same cast, but infinitely more picturesque, more wild, more varied, and more sublime. The Linth is much broader and more rapid than the Derwent, and the hillocks of the Peak are mere mole-hills to the Alps of Glarus. These stupendous chains of rocks are absolutely perpendicular, approach one another so near, and are so high, that the sun may be said to set, even in summer, at four in the afternoon. On each side are numbers of those water-falls we so much admired during our passage over the lake of Wallenstadt; one in particular near the village of Ruti, foamed down the steep sides of a mountain, from the midst of a hanging grove of trees. I was so captivated with these enchanting scenes, that I could not help stopping every moment to admire them: our guide, not conceiving it possible that these delays could be owing to any other cause than the laziness of my horse, never failed to strike the poor beast, and continually awakened me out of my rapturous contemplations; it was some time before I could make him comprehend that I stopped by choice, and wished to continue my own pace. After having rode about ten miles, we quitted our horses and walked. Near Leugelbach, a considerable rivulet is formed by two streams bursting from the ground at the foot of a mountain, which after a few paces unite and fall into the Linth: beside these two principal branches, several smaller springs, and numberless little fountains, gush from the rock. The clearness of the streams; their rapidity and murmuring sound; the trees that hang over the point from whence they issue; the rude rocks above; the rich meadows and scattered hamlets; all together form an assemblage of the most lively and pleasing objects that ever composed a beautiful landscape.

I am informed by Mr. David Pennant, that salmon force their way annually from the sea as high as this river, to deposit their spawn. Their progress is up the Rhine, and out of that noble river up the Aar, and through the lake of Zurich into the Linth, a course of many hundred miles. They are taken in these distant parts in September and October, and about the size of seventeen or twenty pounds weight.

We crossed the Linth several times, which rushes with all the violence of a torrent, and came at length to an amphitheatre of mountains, where the valley ended: on our right hand a fall more considerable than any we had yet seen, tumbling perpendicularly over a bare rock in a large body of water; the Alps on each side crowned with inaccessible forests, and covered with everlasting snow; before us a pyramidal mountain, bare and craggy; and the glaciers of Glarus closing the view. Here the valley and the habitable part of the canton terminate. We then quitted the plain, and ascending through a wild forest of beech and pines, continued more than an hour mounting a very steep and rugged path, till we came to the Panten-Bruck, a bridge over the cataract that forms the Linth, which is here called the Sand-Bach: it roars from the glacier down the steep mountain in one unbroken fall, and, a little way before its arrival under the bridge, works itself a subterraneous passage through the rock, where it is
loft

lost only to appear again with increased violence and precipitation. The bridge is a single arch of stone, of about seventy feet in length, thrown over a precipice of above three hundred feet in depth. It serves as a communication with the upper Alps, and is the passage for the cattle which are fed there during the summer months; on the other side some goats came jumping around us, and seemed to welcome us to their dreary habitations. These mountains are covered with a great variety of rare plants, which made me regret, that I had not pursued my botanical studies. As I leaned upon the parapet of the bridge, and looked down into the chasm beneath, my head almost turned giddy with the height. The rock, down which the Sand-bach drives, is composed of slate. After we had continued some time admiring the sublime horror of the scenery, we descended into the valley, and made a hearty meal upon some excellent bread, honey, butter, and milk, which a neighbouring cottage supplied. As the canton almost entirely consists of rich meadows, the milk and butter are delicious, and the honey of these mountainous countries is most exquisite. Nothing delights me so much as the inside of a Swiss cottage: all those I have hitherto visited, convey a little image of cleanliness, ease, and simplicity; and must strongly impress upon the observer a most pleasing conviction of the peasant's happiness.

If I had never seen these little democratical states, I could have formed no idea of the general equality and indistinction that prevails among the inhabitants. All the houses, like those of Appenzel, are built of wood; large, solid, and compact, with great penthouse roofs that hang very low, and extend beyond the area of the foundation. This peculiar structure is of use to keep off the snow; and, from its singularity, accords surprisingly with the beautiful wildness of the country. The houses of the richer inhabitants in the principal burghs, are of the same materials: the only difference consists in their being larger.

The police is well regulated throughout Switzerland, and even in these democratical states liberty does not often degenerate into licentiousness; we may except, perhaps, the day of their general assemblies, when it is impossible to prevent some degree of confusion in a meeting where there is scarcely any distinction of persons; and where every peasant considers himself as equal to the first magistrate.

Our host is an open-hearted, honest Swiss: he brings his pint of wine, sits down to table with us, and chats without the least ceremony. There is a certain forwardness of this kind which is insupportable, when it apparently is the effect of impertinent curiosity, or fawning officiousness; but the present instance of frank familiarity, arising from a mind conscious of its natural equality, and unconstrained by arbitrary distinctions, is highly pleasing; as the simple demeanour of unsophisticated nature is far preferable to the false refinements of artificial manners. I am, &c.

LETTER VII.—*The Abbey of Einsidlin.—Rapperschwyl.*

Einsidlin, July 31.

WE could not pass through this part of the country, without making a pilgrimage to Einsidlin, and paying our respects to this celebrated shrine: an object of much devotion among the Catholics. Einsidlin, or *Notre Dame des Hermites* is a rich and magnificent abbey of Benedictines in the canton of Schewitz, which owes its celebrity to the miraculous image, as it is called, of the Virgin Mary. The ridiculous tales they relate of the origin and aggrandizement of this abbey, are so many melancholy instances of the credulity of the darker ages: that they are still believed in the present enlightened

century, must be attributed to the force of habitual prejudice; and at the same time proves, how difficult it is for the human mind to shake off those superstitious errors, which it has early imbibed under the name of religion.

In the ninth century a certain hermit called Meinrad, was the first who retired to this place, where he built a chapel, and was assassinated by robbers. But shall I tell you, or (what is more to the purpose) will you believe me if I tell you, that this murder was discovered by two crows, who followed the assassins to Zurich, where they were seized and executed? Soon after, the dead body of St. Meinrad of course works miracles; and all the world pilgrimises to his bones. The sanctity of this place being thus established, some one (for whether it were St. Benno or St. Eberhard, or what other saint I cannot precisely determine,) constructed another chapel, which he dedicated to the Virgin, and laid the first foundation of the abbey; having bequeathed for that purpose his whole fortune: and the pious fund was soon considerably augmented by subsequent donations. Shall I tell you also, that in 948, Conrad, bishop of Constance, as he was going to consecrate the chapel, heard a voice from heaven, assuring him, that God himself had consecrated it? Whatever was its origin, and whoever was its founder, crowds of pilgrims resort hither from all quarters to adore the Virgin, and to present their offerings: and it is computed, that upon the most moderate calculation, their number amounts yearly to 100,000. The circumjacent country was formerly a continued forest, which since the erection of the abbey has been gradually converted into rich pastures and beautiful meadows: and this is a miracle which the Virgin, in a certain sense, may be truly said to have performed.

August 1.

I have just been visiting the abbey, the chapel of the Virgin, and her immense treasures. The church of the abbey is a large and magnificent building, but exhibits a remarkable specimen of false taste, being loaded with bad paintings, and superfluous ornaments. In the aisle not far from the entrance, is a small and elegant marble chapel of the Corinthian order: this is the celebrated shrine of the Virgin, to which the pilgrims resort. On the outside an angel supports the following inscription:

Hic est plena remissio peccatorum omnium a culpa et pœna.

Over the door is a plate of silver with five holes, into which I saw several persons thrusting their fingers, and praying at the same time with great fervour: upon inquiry I found, that the credulous people believed these holes to be the marks of God's fingers. In the inside of this chapel is the image of the Virgin, which vies with the Lady of Loretto in beauty of countenance; her face, as well as that of the child she holds in her arms, being black. She is richly apparelled, and changes her garment every week; her wardrobe consisting of fifty-two different suits.

The riches of the treasury are immense; containing numberless offerings of gold, silver, and precious stones, arranged in the most ridiculous manner; skulls and bones sumptuously ornamented; whole skeletons of saints in masquerade, and ladies with ruffles, fly-caps, and splendid apparel as if dressed for a ball. What a wretched insult upon poor human nature! I could not help considering them with a mixture of pity and indignation, as the offerings of ignorance before the shrine of bigotry and superstition. The miracles which the Virgin has wrought in this country are infinite, if we may judge from the numerous figures of ears, eyes, legs, arms, heads, &c. represented by those, who fancied themselves respectively cured in those several members, by the power of this wonder-working image.

I was glad, however, to find in the midst of this superstitious trumpery, a good library, which contained some fine editions of the classics.

In this place there is a considerable traffic in rosaries, crosses, and little images; and there are rows of shops, where nothing is to be purchased but these necessary appendages of the Roman Catholic religion: it has all the appearance of a fair. There is also a room in the abbey, where the same kind of merchandize is exposed to sale; and one of the friars attends to receive your money, and very gravely assures you, that the several articles have touched the sacred image. Among other curiosities of this kind, I purchased two ribbands, for two pence each, with the following inscription upon them: *Ce Ruban entier, est la longueur; jusqu'au trait est l'épaisseur, de l'image de Notre Dame des Hermites. Il a touché l'image miraculeuse.*

This abbey is very rich, and has considerable revenues in the canton of Zurich. The abbot, who is titular prince of the German empire, is elected by sixty Benedictines, that form the chapter*.

As I walked to this celebrated convent, I found the whole way furnished with stalls, provided with cakes, whey, and other refreshments for the numerous pilgrims then on their road. I saw several hundreds, in groups of different numbers. Some consisted of a whole parish, attended by their spiritual pastor. More than once I observed some grievous sinner driven from the flock, and walking at a distance counting his beads, bare-footed and bare-headed, doing full penance for his crimes. I also saw several beves of merry damsels, who seemed to enjoy the pilgrimage as much as Welsh lasses relish a wake. They often turned into the little chapels which lay open on the way, and wantonly sprinkled each other with holy water.

This day's journey reminded me of Chaucer's Tales, in which he exactly describes this pilgrimage, in his account of that to the shrine of St. Thomas of Canterbury:

From every place the pious rambles stray,
But most to good Einsidlin bend their way:
There at the martyr's shrine, a cure they find
For each sick body, and each love-sick mind.

Rapperschwyl, August 2.

The evening, yesterday, being fine and cool, I walked from Einsidlin to this place. After we had ascended about three miles, a view of the lake of Zurich, and of the adjacent country, opened upon us at once. The prospect was extensive and beautiful: the solemn stillness of the evening, the calmness of the lake, and the tints of the setting sun, which glowed around the horizon, very much improved its charms. When we arrived at the lake the moon began to rise; and, throwing its beams across the water, formed another scene, more mild indeed, but not less affecting. We then crossed the bridge of Rapperschwyl, built over the narrowest part of the lake: it measured near 1700 paces. The town is pleasantly situated upon a neck of land or promontory. It

* On the 2d of May 1798, a French column, under the command of General Tresinet, after defeating the Swiss peasants on the borders of the lake of Zurich, and pillaging and burning several villages, arrived at Einsidlin. They found the abbey deserted by all the monks except one, and stripped of all its treasures. The image of the Virgin was sent to Paris as a companion to that of Loretto, and General Schawembourg ordered the abbey to be instantly demolished in his presence. *Planta*, p. 442.

The demolition of this building was announced to the new Helvetic diet assembled at Arau, and is thus recorded in the new annals of Switzerland:

“Citizen Haas informed the Assembly, that General Schawembourg had resolved to destroy the convent of Einsidlin, and to preserve only such buildings as were necessary for the purposes of agriculture; that no vestige of that den of fanaticism and superstition should remain.” *Moniteur*, 3 Prairial, P. An 6.

formerly threw itself under the protection of Uri, Schwitz, Unterwalden, and Glarus, with a reserve of all its privileges: but these cantons, shamefully oppressing the inhabitants, and encroaching upon their liberties, Zurich and Bern took possession of the town in 1712, and restored its antient immunities. From that period Rapperschwyl has continued under the protection of Zurich, Bern, and Glarus; the latter having preserved its right by its neutrality. By this treaty the town having recovered its former prerogatives, the inhabitants, in testimony of their gratitude, placed the following inscription over the gates: *Amicis Tutoribus floret libertas.*

This small republic is governed by a great and little council, consisting of forty-eight members. The town contains two hundred burghers, and about a thousand inhabitants, all Catholics. Its territory is about a league in circumference, and comprehends three parishes. Yours, &c.

LETTER VIII.—*Town and Canton of Zurich.*

Zurich, August 3.

YESTERDAY we dined luxuriously with the Capuchin friars at Rapperschwyl, who seldom treat their guests in so sumptuous a manner. It was one of their great feast-days; and they regaled us with every variety of fish, with which the lake and the neighbouring rivers abound. The convent stands upon the edge of the water, and commands an agreeable prospect: the library is by far the pleasantest apartment, though not the most frequented. The cells of the monks are small, and yet not inconvenient; but cleanliness does not seem to constitute any part of their moral or religious observances. Indeed the very habit of the order is ill calculated for that purpose, as they wear no shirt or stockings, and are clothed in a coarse kind of brown drugget robe, which trails upon the ground. Strange idea of sanctity! as if dirt could be acceptable to the Deity. I reflected with particular satisfaction, that I was not born a member of the Roman Catholic church; as perhaps the commands of a parent, a sudden disappointment, or a momentary fit of enthusiasm, might have sent me to a convent of Capuchins, and have wedded me to dirt and superstition for life.

After dinner we took leave of our hosts, and departed for Zurich by water: the lake is near ten leagues in length, and one in breadth. This body of water is of an oblong form, and not near so large as that of Constance; but the borders are studded more thickly with villages and towns. The adjacent country is finely cultivated and well peopled; and the southern part of the lake appears bounded with the high stupendous mountains of Schwitz and Glarus: the scenery is picturesque, lively, and diversified.

Zurich was formerly an imperial city, and obtained from the Emperor Frederick II. very considerable privileges; which were acknowledged and augmented by several of his successors. The civil war between the magistrates and the people, in 1335, nearly reduced the city to ruins; but the former being banished, the citizens, in 1337, established a new form of government, which was confirmed by the Emperor Louis of Bavaria. The exiles, after several fruitless attempts, were at length re-admitted; but, engaging in a conspiracy against the citizens, were discovered and put to death. In consequence of this execution, the nobles in the neighbourhood took up arms; and Zurich, after having ineffectually applied for assistance to the Emperor Charles IV., formed an alliance with Lucerne, Uri, Schwitz, and Unterwalden, and was admitted a member of their confederacy. This event happened in the year 1351. The four cantons yielded

yielded the pre-eminence to Zurich: a privilege it enjoys at present; being the first canton in rank, and the most considerable in extent both of territory and power next to Bern. In the same year Zurich was assisted by the four cantons against Albert Duke of Austria, who besieged the town, and was repulsed with great loss.

Zurich was the first town in Switzerland, that separated from the church of Rome; being converted by the arguments of Zuingli. Of all the reformers (the, mild and elegant Melancthon alone excepted,) Zuingli seems to merit peculiar esteem: he possessed, to a great degree, that spirit of meekness, moderation, and charity, which are the characteristics of true Christianity; and amid all the disputes between the Lutherans and the reformed churches, was a constant advocate for peace and reconciliation. He was perfectly free from narrow bigotry which makes no distinction between points of the merest indifference, and objects of the greatest importance; as from overbearing pride, which, while it violently condemns the opinions of others, assumes infallibility with respect to its own. In a word, it was his opinion, that, provided Christians agree in the most essential articles; they ought meekly to bear with any difference upon subjects less uncontroversial, and which do not influence morals.

Ulrich Zuingli was born Jan. 1, 1484, at Wildhausen, a small village in the Tockenburgh; and, in the twentieth year of his age, was appointed minister of Glarus. Even before the publication of the sale of indulgences by Leo X., which was the more immediate cause of the reformation, Zuingli exposed at Glarus several superstitions of the church of Rome; and gained additional credit, by preaching at Einsiedlin against vows, pilgrimages, and offerings. After the publication of the sale of indulgences, while Luther was undermining the fabric of papal authority in Germany, Zuingli was no less successful in Switzerland. By his zeal and intrepidity, and by the irresistible force of truth, he gained so many converts at Zurich, (where he had been invited to preach,) that in 1524 the magistrates abolished the mass, and other Catholic ceremonies, and introduced the reformed religion. Zuingli had taken such wise precautions, and acted with such extreme moderation, that the disputes between the two sects were carried on with more temper than is usual in religious controversies. The change which had been some time in agitation, was finally determined by a plurality of voices in the sovereign council, and the people readily and cheerfully obeyed the decision of their magistrates. The example of Zurich was soon followed by Bern, Schaffhausen, Basle, with part of Glarus and Appenzel; the other cantons continuing to adhere to the religion of their ancestors. From this period the two persuasions have been established in Switzerland; but that harmony, which had hitherto subsisted between the cantons, has been occasionally interrupted. In 1531, religious disputes broke out with so much violence and animosity, as to occasion a civil war; in which the Protestants were defeated, and Zuingli lost his life, in the forty-eighth year of his age, at the battle of Cappel*. Since that period two other religious wars have been kindled; one in 1656, in which the Catholics gained the advantage; and the other in 1712, when the Protestants proved victorious. The peace of Arau, which terminated these unhappy disputes, has, it is to be hoped, finally composed all religious animosities. By that treaty, which may be considered as a code of toleration among the Swiss; the treatment of the Protestants and Catholics in the common bailliages is regulated. The first article stipulates, that in all the

* It has been urged against Zuingli, as a proof of his persecuting principles, that he was personally engaged in this war against the Catholics. To this it may be answered, that he had used every argument in his power to reconcile the contending parties; that he even openly arraigned the impatient and turbulent zeal of his fellow-citizens; that he acted in obedience to one of the fundamental laws of the republic; and that he accompanied the army by the express command of the magistrates.

provinces, which are subject to cantons of different religion, there shall be a perfect
 " between the two sects, and that they shall both enjoy the same privileges: to
 which is added an express prohibition to each party, not to use any terms of raillery
 or contempt, in speaking of their respective modes of worship.

The canton of Zurich abounds in corn, wine, and excellent pasture. The proportion of grain to the other productions of the earth, will appear from the following calculation. There are 217,424 † acres in tillage, 14,466 in vines, 94,553 in meadows, 42,549 in pasturage, and 103,778 in forest.

As sufficient corn is not produced for the interior consumption, the deficiency is chiefly supplied from Suabia; and, to prevent a scarcity of this material article, a public granary is maintained at the expence of government. The grain is retailed at the common price; but, in seasons of scarcity, is sold considerably cheaper than it can be purchased at the market. The good effects of this establishment appeared at the dearth in 1771; when, on account of the dearth of corn, a pound of bread was sold for ten pence, the same quantity was delivered by government for four pence. The wine made in the canton forms an inconsiderable object of foreign commerce; the greatest part being consumed in the country. In 1779 were exported 10,029 casks, each containing 180 bottles; in 1780, 24,568, and in 1781, 11,354.

The canton contained, in 1784, 174,572 souls, including 10,500 in the capital. This large population, in proportion to the size of the canton, is owing to the trade of Zurich; as at least two-thirds of the inhabitants derive their livelihood by spinning thread and silk, and making linen for the manufactures of the town.

The sovereign power resides exclusively in the burghesses of the town, consisting of about two thousand.

Here I cannot but remark, that a narrow spirit of policy reigns throughout most of the states in Switzerland; as they seldom confer the burghership. This rule, however, in some of the republics, is less scrupulously observed than in others; but in Zurich a new citizen has not been admitted during these last hundred and fifty years.

It is curious to trace the restrictions which have been gradually laid on granting the burghership. On the 26th of May, 1540, the Sovereign Council issued a decree, importing that whosoever was desirous of becoming a citizen, should be obliged to produce a certificate of good behaviour, properly witnessed and signed, and bearing the seal of the magistrates of the place in which he formerly resided; and should, before he was enrolled among the burghers, pay ten florins, near 1*l.*, if a native of Switzerland, and double that sum if a stranger. An inhabitant of the town or canton was taxed only at three florins for his admission; and all artists and persons of learning, necessary or useful to the state, were to be received gratis. In 1549, it was enacted, that the burghership should be refused to all who were not possessed of considerable riches, or who did not introduce new arts and trades. This decree was repeatedly confirmed; and, in 1593, it was added, that a new citizen should not be entitled to a share in the government but on the following conditions: If an inhabitant of the canton, he must have resided in the town during ten years; if a native of Switzerland, twenty; if a foreigner, forty; and he must build or purchase a house within the walls of Zurich: this last article was repealed in 1612. In 1597, the reception of new citizens was suspended for the first time, but only for two years; and in 1610, the admission-money was augmented.

† Of 36,000 square feet each.

In the commencement of the 17th century, government refused to receive into the Sovereign Council the noble families of Orel, Peffaluzz, and Muralt, which, in 1555 and 1557, had quitted Italy and settled at Zurich: these families, partly on account of having embraced the reformed religion, and partly as persons of capacity and industry, had been received into the burghership, but rendered incapable of enjoying a share in the administration of affairs. This exclusion, again confirmed in 1592, was revoked in 1673, in favour only of the family of Muralt, which exception was obtained by considerable largesses. In 1674, the family of Orel offered to disburse ten thousand florins towards the expence of repairing the fortifications, on condition of being rendered capable of election into the Sovereign Council: their petition was then refused, but generously granted in 1679, without the smallest equivalent. Finally, on the 7th of January, 1661, the Council determined to make no more burghers; which resolution has been invariably followed.

The burghers, beside the advantage of electing their magistrates, and of aspiring to the administration of affairs, enjoy the sole * right of commerce; all strangers, and even subjects, being excluded from establishing manufactures in the city, or in any part of the canton.

* The narrow principle of commercial monopoly, which confined trade to the burghers of Zurich, excited a spirit of disaffection among the subjects, and particularly the populous districts on the borders of the lake, who overlooked the advantages which they enjoyed from a mild and equitable government in this partial grievance. To the effects of this principle may be attributed the feeble conduct of this canton on the aggression of the French. The magistrates foresaw the designs of the French rulers to subjugate Switzerland, and were willing to co-operate with Bern in defence of Helvetic independence; but their efforts were defeated by the opposition of the borderers of the lake, who instituted committees of reform, and sent deputies to Paris. Hence all the proposals of government to supply the contingent of men for the relief of Bern, were answered by counter-proposals to reform the constitution. At length the supreme council of Zurich, anxious to conciliate their subjects, and apprehensive of the progress of the French arms, made some concessions, which only served as a pretext for new demands. At each order issued by government for a general armament, new privileges were extorted, until the supreme council committed the charge of new-modelling the state to a convention of one hundred persons selected from different ranks. This committee drew up articles of a new constitution, which were ratified by the councils and the whole body of burghers; and the old magistracy was invested with the feeble authority of a provisional government.

But even this innovation did not produce the desired effect: for when the magistracy, in conjunction with the convention, attempted to call forth the contingent of the canton, a small and dispirited number obeyed the summons, and only 1500 men, from a canton whose population amounted to 170,000, marched against the French. These troops were dispirited, uncertain how to act, and, distracted by the wavering counsels of Bern, did not take the field; but, on the capitulation of Bern, surrendered, at Friniberg, to a body of French troops: two companies were plundered; but the remainder were permitted to continue their march to their capital, with all the honours of war.

A general panic now spread among the inhabitants of Zurich; reports prevailed, that on one side a corps of French were preparing to invade the canton, and on the other a large body of the subjects in a state of insurrection were marching against the capital. A hasty accommodation was arranged between the two parties; the inhabitants took up arms, and prepared to defend the place.

Fortunately these reports proved to be fallacious; for a negotiation was opened with the insurgents, who had erected themselves into an assembly of the people, with central and provisional committees; and after a few conferences an accommodation was effected. A garrison of 1000 militia was admitted into the town; the provisional government was dissolved; a national assembly convoked; the magistrates deposited their authority into the hands of the free and sovereign people; a new provisional regency was established; a tree of liberty planted, with the inscription, "The Bretheren of the town and country are united;" and a deputation, with the peace-offering of the new constitution, was sent to the French generals, to implore the protection of France, and to request that no foreign troops might enter their territories.

The French generals accepted the submission of Zurich, but inundated the canton with troops. Further alterations were made by the provisional government; and on the 21st of March the national assembly acceded to the new organization of the Helvetic constitution.

The burghers of Zurich are divided into thirteen tribes; one of which is called *Confaffel*, or the tribe of nobles, although at present not absolutely confined to persons of that description: it enjoys the privilege of giving eighteen members to the Sovereign Council, and six to the Senate, whereas each of the other tribes only supply twelve to the former, and six to the latter.

The legislative authority is vested by the burghers in the Sovereign Council of two hundred; consisting, however, of two hundred and twelve members drawn from the thirteen tribes, and comprising the Senate or Little Council. This * Senate, composed of fifty members including the two burgomasters, has jurisdiction in all causes civil and criminal: in civil cases, when the demand is of a certain importance, an appeal lies to the council of two hundred: but in criminal affairs, their sentence is final, and, when once passed, there is no reversal or mitigation. An excellent maxim! provided the judges are cautious and circumspect, and the laws mild: for there is no greater encouragement to the commission of crimes, than the frequency of pardons. Such an institution, however, ought necessarily to exclude severity of punishment; and could never be admitted in a state, where by the letter of the law the same punishment is inflicted upon a sheep-stealer as upon a parricide.

It is to be regretted, that in this republic, as in most other states of Switzerland, there is no precise code of criminal law. The Caroline, or code of Charles V. is ostensibly followed; but on account of its obsolete usages and extreme severity, the sentence is ultimately left to the discretion of the magistrates. For notwithstanding the most perfect integrity, and upright intentions, yet it is hardly possible to suppose, that party, friendship, connections, and family, should not frequently influence the judges and occasion partial proceedings. It would perhaps well become the wisdom of this enlightened and equitable government to form a penal code, and to ascertain with precision the punishment for each offence. The example of such a republic would in time be followed by the remaining cantons and states of Switzerland; and posterity would bless the name of Zurich for having occasioned the introduction of more settled principles in the criminal courts of Justice. Some late decisions have rendered this arrangement more obviously necessary. Several persons disordered in their understandings committed suicide; and, although the circumstances of the crime were nearly similar, yet the most opposite sentences were pronounced on these occasions; so that the families of those to whom a greater degree of severity was shewn, were necessarily more distressed on account of the mildness manifested to the others.

Every judge of delicacy and honour would undoubtedly experience great satisfaction to find himself restrained by precise laws from listening to solicitations from friends and party, and from being biased by those feelings, of which it is almost impossible to be divested.

The power of the Senate, considered in a collective capacity, is very considerable: it judges finally in all criminal causes, has the care of the police, and supplies the principal magistrates. But, as too great a power of individuals is dangerous in a republic, the members of this assembly are liable to be changed, and a revision or confirmation is annually made, in some instances by the Sovereign Council, in others by the particular tribes to which the senators belong. This annual revision is a great check to mal-

* Formerly the Senate was separated into two equal divisions, which alternately administered the office during six months; and although these divisions still continue, yet for some time past they have reunited and acted together.

administration, and at the same time prevents the Senate from gaining so great an influence as to be detrimental to the liberties of the people. A burgher is qualified to vote at twenty; is eligible into the Sovereign Council at thirty; and into the Senate at thirty-five. By these wise regulations, a man must have formed some experience in public affairs, before he is capable of holding an important charge. The revenues of government, though not exceeding 65,000*l. per ann.*, are more than proportionate to the expences; which are regulated with the strictest œconomy. The state is not only without debts, but an annual saving is deposited in the public treasury, for a resort upon any sudden emergency. From this fund government supported the whole expence of the war, in 1712, against the Catholic cantons, without imposing any additional tax.

The canton of Zurich is divided into districts or bailliages, which are governed by bailiffs nominated by the Sovereign Council. These bailiffs, excepting those of Kyburgh and Groningen, cannot pass capital sentence, or order torture. They can arrest and interrogate the delinquent, and punish small misdemeanors by whipping, or banishment from the bailliage. In capital cases they examine, make out the verbal process, and send the felon to Zurich for further trial. On enquiring into the state of criminal jurisprudence, I learned with satisfaction, that the torture had not been inflicted in the capital for these last nine years; which may be presumed to be a prelude to its total abolition; but it is much to be regretted, that whipping, which is a species of torture, is not unfrequently applied, in order to force confession, both in Zurich and in the bailliages; an abuse of justice repugnant to the wisdom of so enlightened a government.

The city of Zurich stands at the northern extremity of the lake, and occupies both sides of the rapid and transparent Limmat. The environs are extremely delightful; an amphitheatre of hills gradually sloping to the borders of the water, enriched with pasture and vines; dotted with innumerable villas, cottages, and hamlets; and backed on the west by the Utliberg, a bold and gloomy ridge stretching towards the Albis, and that chain of mountains which rises gradually to the Alps.

The town is divided into two parts; the old part, surrounded with the same ancient battlements and towers which existed in the thirteenth century, and the suburbs which are strengthened by fortifications in the modern style, but too extensive. The ditches, instead of being filled with stagnant water, are mostly supplied with running streams. The public walk is pleasantly situated in a lawn, at the junction of the Limmat and the Sil, an impetuous and turbid torrent, which descends from the mountains of Einsiedlin: two rows of lime-trees planted by the side of the Limmat, and following its serpentine direction, afford an agreeable shade in the heat of summer. The inhabitants are very industrious; and carry on with success several manufactures: the principal are those of linens and cottons, muslins, and silk handkerchiefs. The manufacturers do not in general dwell within the walls; but the materials are mostly prepared, and the work is completed in the adjacent districts. For this reason Zurich does not exhibit the activity and numbers of a great commercial city. The environs, on the contrary, are so extremely populous, that perhaps few districts in the neighbourhood of a town, whose population scarcely exceeds ten thousand inhabitants, contain within so small a compass so many souls. The streets are mostly narrow; the houses and public buildings accord more with plainness and convenience, than with the elegance and splendor of a capital.

The town contained, in 1780, 10,559 souls, in the following proportions: 2583 male burghers, 3464 female burghers; 860 foreign clerks, 250 foreigners; 372 male inhabitants, 444 female inhabitants; 223 men-servants, 1734 maid servants; and 629

patients in the hospital. The gradual decrease of the population in the town, which arises from the difficulty of obtaining the bugher ship, will appear from the following table :

1357.	1756.	1762.	1769.	1780.
12,375	11,102	10,616	10,574	10,559

The increase of luxury and opulence will appear from considering that, in 1357, the number of men-servants amounted to only 84, and of maid-servants to 263; whereas, in 1780, the former were 223, and the latter 1734; or near a fifth of the whole population.

The manners of the inhabitants are in general simple, and may perhaps in these times be esteemed antiquated. Dinner is usually served at twelve : in the afternoon the gentlemen assemble in clubs or small societies, in the town during winter, and at their respective villas in summer. They frequently smoke, and partake of wine, fruit, cakes, and other refreshments. The women, for the most part employed in their domestic occupations, or devoted to the improvement of their children, are not fond of visiting. When they go out, they generally assemble in separate coteries, to which only a few men, and those chiefly the nearest relations, are admitted : many of the ladies indeed, from a consciousness of their provincial accent, and a difficulty of expressing themselves in French, seldom make their appearance when strangers are received. It has more than once happened to me, that on being shewn into the apartment wherein the ladies were assembled, the master of the house has taken me by the hand, and led me into another room, where he would have detained me, if I had not requested to be reconducted to the ladies. This reserve begins greatly to abate, and to give place to a more sociable intercourse. Such, however, is the prevalence of national habit, that a few families, which form a more agreeable mixture of company, are considered as differing from the established customs, and are still known by the name of the *French Society*.

Sumptuary laws, as well as those against immorality, are well observed. The former indeed may exist, and be carried into execution even among a people much corrupted ; for it may be the policy of government to enforce their observance. But the severest penalties will not be sufficient to prevent crimes of an immortal tendency, amidst a general dissoluteness of manners : the popular principles can alone invigorate such laws, and give to them their full operation. Secret crimes cannot be prevented ; but it is an evident proof of public virtue, when open breaches of morality are discountenanced.

Among their sumptuary laws, the use of a carriage in the town is prohibited to all sorts of persons except strangers : and it is almost inconceivable that, in a place so commercial and wealthy, luxury should so little prevail.

The militia of the canton amounted, in 1781, to 25,718 infantry, 1025 artillery, 886 dragoons, and 406 chasseurs; in all 28,235 effective men. There is a military chest at Zurich, established in 1683, and supported by the members of the great council, who, instead of giving an expensive entertainment, are bound on their election or farther promotion to pay a certain sum. From this fund, which has been considerably augmented, 2000*l.* was taken, in 1770, for the purpose of establishing a magazine of uniforms and arms, which are either distributed, or sold at a low price to the poor peasants who cannot afford to purchase them at their full value ; each peasant, according to the military laws of the canton, being obliged to possess his arms and uniform.

The arsenal is well supplied with cannon, arms, and ammunition ; and contains a reserve of muskets for thirty thousand men. We saw there, and admired, the two-handed

handed swords and weighty armour of the old Swiss warriors; as also the bow and arrow with which William Tell is said to have shot the apple from the head of his son.

This canton has a regiment and some companies in the service of France, a regiment in that of Holland, and some companies in the service of the King of Sardinia. The King of France pays annually for a regiment of fusiliers, consisting of 1292 men, 20,348*l.* The colonel receives about 840*l. per ann.*; a captain 360*l.*; and a common soldier 7*l.* The pay of a regiment of twelve companies, in the Dutch service, is 25,377*l.*

LETTER IX.—*Ecclesiastical affairs.—State of Literature.—Learned Men of Zurich.—Society of Physics.—Seminaries.—Libraries.*

IN ecclesiastical affairs the senate is supreme: the canton is divided into fourteen districts, each governed by a dean, chosen by the synod, from three candidates proposed by the clergy of the diocese. The synod, composed of the whole clergy, and several assessors on the part of the Little Council, meets twice a year. In the last century it had a more democratical form, and exercised jurisdiction over its members: it examined causes between ecclesiastics, and between the ministers and their parishioners; gave decisions; enjoyed the power of imprisoning, deposing and reinstating the ministers; and exercised an authority dangerous to the state. By degrees their exorbitant prerogatives were annulled; and in 1700 the clergy of Zurich succeeded in the establishment of a more aristocratical form.

The principal ministers and professors in the town constitute, in conjunction with several magistrates and other assessors deputed by the civil power, an ecclesiastical and academical council: to this committee the deans have recourse in all concerns which seem to exceed their jurisdiction: it determines lesser affairs, and refers cases of importance to the senate.

The fourteen deans assemble twice a year in Zurich, and compose a *prosynode*; in which they depute one of their own body to deliver their requisitions, or *pia desideria*, first to the Ecclesiastical Council, and afterwards to the general Synod. The Ecclesiastical Council takes their requests into deliberation, lays them before the Synod, and, if recommended, they are presented by the assessors to the final decision of the Senate. The ecclesiastical benefices in this canton are extremely moderate. The best living may be worth 140*l. per ann.*, and the worst about 30*l.* The salary of the canonries in the capital amounts to 120*l.* In general, a clergyman in the town, who has merit, is certain of obtaining a professorship, which adds 50*l.* or 60*l. per ann.* to his other appointments.

The charitable establishments at Zurich are the orphan-house, which is regulated with extreme attention and care; an alms-house for poor burghers; an hospital for incurables, and that for the sick of all nations, which usually contains between six and seven hundred patients; and the *Allmosen-Amt*, or foundation for the poor: this excellent institution puts out children as apprentices, and distributes money, clothes, and books of devotion to poor persons, as well in the town as in different parts of the canton, at the recommendation of the respective ministers. In 1697 it distributed 300*l.*; in 1760 5,010*l.*; in 1770, 4,796*l.*; and in 1778, 5,451*l.*

Among the particular institutions must not be omitted the chirurgical seminary: it is formed by voluntary subscriptions, and chiefly supported by Dr. Rhan, an eminent physician, who reads lectures gratis, and gives the profits of a publication, called the

Magazine of Health, towards maintaining this seminary, for the instruction of young physicians and surgeons, destined to settle in the country.

At Zurich public education is a concern of state, and under the immediate protection of government. The office of a professor gives rank and estimation, and is often held by a member of the Senate and of the Great Council. The principal literary establishments for the instruction of youth are, the Caroline College for students in divinity; *Collegium Humanitatis*, or the college for polite literature; and the school of arts: the first has twelve professors, the second two, and the last seven. The learned languages, divinity, natural history, mathematics, and in short every species of polite learning, as well as abstruse science, is taught at a small expence in these respective seminaries.

In consequence of the unremitted attention which, since the reformation, government has paid to the education of youth, many eminent persons have flourished in all branches of literature; and there is no town in Switzerland where letters are more encouraged, or where they have been cultivated with greater success. A learned professor of Zurich has, in a very interesting publication, displayed the important services which erudition and science have derived from the labours of his countrymen. In these biographical memoirs appear, among many others, the names of Zuingle and Bullinger, Conrad Gefner, Hottinger, Simler, Spon, Scheutzer, Heydegger, Breitingger, Bodmer, Hertzell, and Solomon Gefner.

Of all the luminaries which Zurich, fertile in great geniuses, has ever produced, Conrad Gefner perhaps occupies the first place. He was born at Zurich in 1516, and died in 1564, in the 48th year of his age. Those who are conversant with the works of this great scholar and naturalist, cannot repress their wonder and admiration at the amplitude of his knowledge in every species of erudition, and the variety of his discoveries in natural history, which was his peculiar delight. Their wonder and admiration is still further augmented, when they consider the gross ignorance of the age which he helped to enlighten, and the scanty succours he possessed to aid him in thus extending the bounds of knowledge; that he composed his works, and made those discoveries which would have done honour to the most enlightened period, under the complicated evils of poverty, sickness, and domestic uneasiness. A detail of his life and writings, by an author capable of appreciating his multifarious knowledge, would be a just tribute to the merits of this prodigy of learning, (*Monstrum Eruditionis*,) as he is emphatically styled by Boerhaave.

Bodmer, born in 1698, was alive in 1776, when I first visited Switzerland; but I was at that time ignorant of the German language, and unacquainted with his great merits in reforming the taste of his contemporaries, and familiarizing them to the sublime beauties of Homer and Milton. He died in 1783. I now regret that I did not cultivate the acquaintance of a man, whom the unanimous voice of his contemporaries deservedly style the Father of German literature; whose just criticisms and correct judgment animated the poetical genius of Klopstock, Haller, and Gefner.

I did not omit waiting upon Solomon Gefner, the celebrated author of the *Death of Abel*, and of several idyls, which for their delicate and elegant simplicity are justly esteemed. They abound with those nice touches of exquisite sensibility, which discover a mind warmed with the finest sentiments; and love is represented in the chastest colouring of innocence, virtue, and benevolence. Nor has he confined his subjects merely to the passion of love: paternal affection, and filial reverence; gratitude, humanity, and every moral duty, is exhibited and inculcated in the most pleasing and affecting manner.

He has for some time renounced poetry for the pencil; and painting is at present his favourite amusement. A treatise which he has published on landscapes discovers the
elegance

elegance of his taste, and the versatility of his genius; while his compositions in both kinds prove the resemblance of the two arts, and that the conceptions of the poet and of the painter are congenial. His drawings in black and white are preferable to his paintings; for although the ideas in both are equally beautiful or sublime, the colouring is inferior to the design. He has published a handsome edition of his writings in quarto, in which every part of the work is carried on by himself: he prints them at his own press; and is at once both the drawer and engraver of the plates. It is to be lamented that he has renounced poetry; for, while ordinary writers spring up in great plenty, authors of real genius are rare and uncommon. His drawings are seen only by a few; but his writings are dispersed abroad, translated into every language, and will be admired by future ages, as long as there remains a relish for true pastoral simplicity, or taste for original composition. He is plain in his manners; open, affable, and obliging in his address; and of singular modesty. Gesner died of an apoplexy, March 2, 1786.

I called also on Mr. Lavater, a clergyman of Zurich, and celebrated physiognomist, who has published four volumes in quarto on that fanciful subject, illustrated with appropriate engravings. This work, however, is rather a desultory collection of observations and conjectures, than a regular system of physiognomy. That particular passions have a strong effect upon particular features is evident to the most common observer; and it may be conceived, that an habitual indulgence of these passions may possibly, in some cases, impress a distinguishing mark on the countenance; but that a certain cast of features constantly denotes certain passions; and that by contemplating the countenance, we can infallibly * discover also the mental qualities, is an hypothesis liable to so many exceptions as renders it impossible to establish a general and uniform system. But Mr. Lavater, like a true enthusiast, carries his theory much farther: for he not only pretends to discover the characters and passions by the features, complexion, form of the head, turn of the neck †, and motion of the arms; but he also draws inferences of the same kind even from the hand-writing. Indeed his system is founded upon such universal principles, that he applies the same rules to all animated nature, extending them not only to brutes, but even to insects. That the temper of a horse may be discovered by his countenance, will not perhaps strike you as absurd; but did you ever hear before, that any quality could be inferred from the physiognomy of a bee, an ant, or a cockchafer? While I give my opinion thus freely concerning Mr. Lavater's notions, you will readily perceive that I am not one of those who are initiated into the mysteries of his art.

* Mr. Lavater, however, modestly renounces pretensions to infallibility in every case, though he claims it in many instances. This visionary, but entertaining author, thus closes his preface: "At the moment I write this, my progress (in the science of physiognomy) is such, that if there are some physiognomies on which I can pronounce no judgment, there are, on the other hand, a great many lines and features, on which I am able to decide, with a conviction of truth and evidence equal to that which I have of my own existence."

This singular and expensive work was published both in German and French, under the author's inspection. Its title in German is "Physiognomische Fragmente zur beförderung der Menschenkenntnis Menschenliebe;" in French, "Essai sur la Physiognomie destiné à faire connoître l'Homme et à le faire aimer." It has been likewise published in English, under the title of "An Essay on Physiognomy, designed to promote the Knowledge and Love of Mankind." A cheaper edition, in four volumes octavo, has been recently published.

† "Being on a visit to Mr. Zimmerman at Biough," says Lavater in his preface, "we stepped to the window to notice a military procession, when a face, with which I was wholly unacquainted, so forcibly struck me, that I formed a decided judgment on the case. Reflection had no share in it, for I did not imagine that what I had said deserved notice. Mr. Zimmerman immediately asked me, with signs of great surprise, 'on what do you found your judgment?' I replied, 'on the turn of the neck.'"

Mr.

Mr. Lavater has not merely confined himself to physiognomy. He has composed sacred hymns and national songs, which are much esteemed for their simplicity. He has also given to the public numerous works on sacred subjects. I am concerned to add, that the ingenious author extends to religion the same enthusiasm which he has employed in his researches on physiognomy, and in his poetical compositions: the warmth of his imagination hurries him on to adopt whatever is most fanciful and extraordinary; to outstep the limits of sober reason; to be an advocate for the efficacy of absolute faith; for inward illuminations; supernatural visions; and the miraculous effects of *animal magnetism* in the cure of disorders. The insinuating address of Mr. Lavater, the vivacity of his conversation, the amenity of his manners, together with the singularity and animation of his style, have contributed more to diffuse his system and principles, than sound arguments or deep learning, which are not to be found in his lively but desultory compositions*.

Among the eminent men of Zurich must not be omitted Dr. Hirtzel, a learned physician, who is deservedly styled the Swiss Plutarch; and has, among various publications, more particularly distinguished himself by the *Socrate Rustique*, and by the lives of Sultzer and Heydegger.

Leonhard Meister, professor of history and morality in the School of Arts, deserves to be mentioned among the learned men of Zurich. The versatility of his talents will be collected from a bare catalogue of his principal works; which are written in the German tongue:—On Fanaticism; the History of the German Language and Literature; Lives of the celebrated Men of Zurich; Swiss Biography; the most memorable Events of the Helvetic History, in chronological Order; Instances of Intolerance and Fanaticism in Switzerland; Public Law of Switzerland; History of the Town and Canton of Zurich; Panegyric on Bodmer; Excursions through various Parts of Switzerland; Character of the German Poets, in chronological Order, with their Portraits; Abridgment of Ancient History, particularly of the Greeks, with an Introduction on the Fine Arts and polite Literature. In all his writings the judicious author has displayed great zeal for the promotion of learning, correctness of taste, liberality of sentiment, and much historical and biographical knowledge. But in his observations on fanaticism and intolerance he has treated those subjects in a new light: he has illustrated their dreadful effects on government and civil society by historical events, and in a political view; he has appealed from theory to experience, and exemplified questionable arguments by unan-

* It was natural to imagine, from the enthusiasm of his character, that Lavater would become an advocate for the specious system of French equality. At a distance, he hailed the dawn of liberty; but he no sooner felt its nearer approach, than he became one of its most inveterate enemies. He found from experience, that the plausible terms of emancipation, liberty, and equality, were used to sanction pillage, oppression, and despotism. While his country was yet suffering under the calamities of French brotherhood, he published his celebrated Philippic against the French Directory which he dated "the first year of Helvetic slavery." In this animated apostrophe, after inveighing against the perfidy and despotism of the French, he pays a due tribute of applause to the mild administration of the ancient republic, the remembrance of which the pressure of French despotism rendered more endearing.

"We now imagined that we had accomplished all your arbitrary mandates, and that no troops should enter our territories. Vain hope! you came with an armed force, which you quartered upon our citizens and peasants. You drained our unhappy country; and to crown our humiliation, you imposed a contribution of three millions of livres upon our senatorial families; the families who for ages had constitutionally held the reins of government, and held them without any imputation of abuse or peculation, certainly without extortion; who made no struggle to maintain the exclusive authority our constitution had vested in them, and against whom, therefore, you could not allege any well-founded charge. The liberty you conferred on us, in return for all these exactions, was the privilege of parting ultimately with our inestimable freedom."

swerable facts. In this instance, he has been no less useful in combating persecution, than in repressing the spirit of fanaticism that prevailed among many of his countrymen, and which is diffused by men of lively abilities and popular manners*.

The curiosity of the naturalist will be amply gratified by a view of the library and cabinet of Mr. John Gefner, professor of physics, and canon of the cathedral, who inherits the zeal for natural history which characterized his great ancestor Conrad Gefner. His proficiency in the study of nature, and particularly his accurate skill in botany, has been abundantly testified by the repeated acknowledgments of Haller, whom he accompanied in his herborizing excursions through the mountains of Switzerland, and who confesses himself indebted to Gefner for various and important discoveries. Gefner's cabinet is extremely rich in fossils, and remarkable for the drawings of the principal specimens of his museum; and for numerous representations of insects admirably painted by Schiellenberg. One of the most curious parts of his collection, is a great botanical work, which Haller calls *vastissimum et pulcherrimum opus*; and which, it is much to be regretted, he has hitherto withheld from the public. He has exhibited, in eighty tables, a thousand generical characters of plants, according to the Linnæan system, together with many of the specific characters. These tables, intended to illustrate a general history of plants, which, as appears by his own letters to Haller, the author meditated, were drawn and engraved by Geisler, the same person who distinguished himself by painting the shells of Regenfuss†.

Amidst the various occupations of Gefner, botany, to which he had an early and strong attachment, has engaged a great share of his attention; besides two or three early productions in this line, he began, in the year 1759, to publish a work which he has extended to eight publications, in the quarto form.

The first seven parts bear the title of *Phytographia Sacra Generalis*; the remaining, that of *Phytographia Sacra Specialis*. In this work the author treats on philosophy, of vegetation in general, and on the circulation of the sap through the particular parts of plants; on the Linnæan system against the objections of Allston; on the uses of plants as food to man, and gives a detail of upwards of a hundred edible kinds, with a compendious account of the specific properties of each; on the medicinal uses of plants; on the various economical uses of vegetables, illustrating in a particular manner, among many others, those of the palm tree, flax, and aloes. In the latter volumes of this work, the author treats on other advantages derived to mankind from the vegetable world. He speaks, for instance, on the nature and constituent parts of turf and peat, and enumerates the species of bog and fen plants, which enter into the composition of each; on the kinds of shrubs proper for hedges; on timber for building, and particularly such trees as were used for those purposes by the ancients. In the first part, which is all that is hitherto published, of what he names *Phytographia Sacra Specialis*, he has given an account of those authors who have written on the plants of the holy scriptures, and enters upon the history of each.

The Society of Physics owes its origin to Messrs. Heydegger, Schultetz, and John Gefner, who first assembled in 1745, and admitted others, in order to attend a course of lectures on natural history. This course was read by Gefner, professor of physics, who so greatly excited the attention, and animated the zeal of his audience, that in a

* Since the revolution of Switzerland, Professor Meister has published a tract, "Ueber den Gang der Politischen Bewegungen in der Schweiz," or, "On the Progress of Revolutionary Movements in Switzerland." This work contains many curious particulars concerning the conduct of the Swiss states, and of Zurich in particular, but must be read with caution, as it was plainly written under French influence.

† See Cox's Travels into Poland, &c. Book VIII. chap. iv.

short space of time the members were increased to seventy. The first regular meeting was held in 1745, in a private house; and in a few years they deserved and received the protection of government, which granted the profits of a lottery towards establishing a fund. There are now about a hundred and twelve members: each pays on his admittance eight florins, or about seventeen shillings, and the same sum annually. Since 1757, a suite of apartments, in a house belonging to one of the tribes, has been assigned for holding their assemblies, and for containing the library and apparatus.

The Society is divided into five departments: 1. Physics. 2. Mathematics. 3. Natural History. 4. Medicine. 5. Application of Physics to Arts and Trades. But the grand and principal object of the Society, is the encouragement and improvement of practical agriculture. For this purpose the members correspond with the landholders in different parts of the canton; visit various districts in rotation; summon to Zurich some of the best informed farmers; acquaint them with the state of husbandry; give them instructions; offer prizes for improvements in cultivation; furnish small sums of money to the poorer peasants: and communicate to the public the result of their inquiries and observations.

The public library at Zurich contains about twenty-five thousand volumes, and a few curious manuscripts. Among which, the following principally attracted my attention. 1. The original manuscript of Quintilian, found in the library of St. Gallen, and from which the first edition of that great rhetorician was printed. 2. The psalms in the Greek tongue, written on parchment dyed of a violet colour. The letters are silver, excepting the initials, which are in golden characters, and the marginal references, which are red. It is similar to the celebrated *Codex Argenteus**, in the library of Upsala. It is supposed to have once formed part of the *Codex Vaticanus*, preserved in the Vatican library at Rome: as both these manuscripts are similar, and the Roman volume is deficient in the psalms. The learned Bretinger has published a dissertation on this codex †. 3. Several manuscripts of Zuingli, which prove the indefatigable industry of that celebrated reformer. Among these I particularly noticed his Latin commentary on Genesis and Isaiah, and a copy of St. Paul's Epistles from the Greek Testament, published by Erasmus. At the end is written an inscription in the Greek tongue, signifying, "Copied by Ulric Zuingli, 1415." It was presented to the public library by Ann Zuingli, the last survivor of his illustrious race. 4. Three Latin Letters from Lady Jane Grey to Bullinger, in 1551, 1552, and 1553. These letters, written with her own hand, breathe a spirit of the most unaffected piety, and prove the extraordinary progress which this unfortunate and accomplished princess, though only in the sixteenth year of her age, had made in various branches of literature. The Greek and Hebrew quotations shew that she was well acquainted with those languages. These letters, though given in several publications, yet are not printed with that accuracy, which the relics of such a personage deserve. The library is rich in the best editions of the classics; and particularly in the early impressions of the fifteenth century.

The library of the cathedral belonging to the Caroline College, contains several manuscripts of the reformers Bullinger, Pelican, Bibliander, and Leon Juda; particularly the translation of the Talmud by Pelican and Bibliander, which has never been printed; also sixty volumes of letters from Zuingli and the early reformers, with a complete index. This collection, so interesting to ecclesiastical history, was formed by Henry Hottinger ‡, the learned author of the history of the Reformation, renowned for his ex-

* See Travels into Poland, Russia, &c. Book VII. chap. vi.

† De Antiquissimo Turicensis Bibliothecæ Græco Psalmodum Libro Turici. 1748.

‡ He was born in 1620; and was drowned in the Linmat, 1697.

tenſive erudition, and particularly for his profound ſkill in oriental literature. The librarian pointed out an ancient manuſcript of the Latin Vulgate, called *Codex Carolinus*, and ſuppoſed to have been a preſent from Charlemain, but without foundation; for it is certainly of much later date, probably of the eleventh century. Among the rare books is the Latin Bible, tranſlated by Pelican, Bibliander, and Leon Juda, printed at Zurich in 1545.

The lover of literary and eccleſiaſtical hiſtory will not fail to inſpect the Reverend Mr. Simler's ample collection of Letters, which paſſed between Zuingle and the other reformers of Zurich, and their correſpondents in different parts of Europe. The learned profeſſor propoſed to print by ſubſcription, in two volumes folio, the letters of the Engliſh reformers, ſeveral of which Burnet has publiſhed in his Hiſtory of the Reformation, but with many errors. Not finding, however, ſufficient ſubſcribers for ſo expenſive a work, he was obliged to relinquish his plan, to the regret of all lovers of biography.

The library of M. de Heydegger, ſenator of Zurich, deſerves the notice of the learned traveller. The ingenious poſſeſſor inherited from his father only three thouſand volumes, which he has extended to fifteen thouſand. His principal aim is directed to thoſe books that were unknown to Maittaire, which might aſſiſt in correcting his typographical annals, and in forming an accurate and connected hiſtory of printing. In this collection are found many rare and elegant impreſſions by the Alduſes, Juntas, Giolitos, Torzentino, Stephens, Elzevirs, Comino, Tonſon, Wetſtein, Baſkerville, Bodoni, Barbot, and Didot. It is particularly rich in the earlieſt impreſſions, of which there are no leſs than ſeven hundred printed in the fifteenth century*.

LETTER X.—*Expedition along the borders of the Lake of Zurich.*—*Rychterſchwyl.*—*Iſle of Ufnau*—*Rapperſchwyl.*—*Grunengen.*—*Uſtar.*—*Greiffenſee.*—*Excursion to Regensberg, and to the ſummit of the Lagerberg.*

DURING my firſt tour through Switzerland, I paſſed too ſhort a time at Zurich to have an opportunity of viſiting the delightful environs, which, for mild beauties of nature, numerous population, and well-being of the peafantry, is ſcarcely ſurpaſſed by any ſpot on the globe. Having, on ſubſequent occaſions, reſided longer at Zurich, I did not omit making ſeveral excuſions into various parts of the canton; an account of which will form the ſubject of the preſent letter.

The weather clearing up after ſeveral continued and heavy rains, on the 24th of June, 1785, I accompanied M. de Bonſtet of Bern, Profeſſor Meiſter, and ſome other gentlemen of Zurich, in a delightful tour round the lake. We had no need of guides, as the country was well known to my companions, and we had no incumbrance of baggage. Having made an early dinner, according to the cuſtom of the place, we departed at mid-day; walked about three miles, through vineyards and corn-fields, to

* Among many rare books, I noted down the following: Ciceronis Officia. Fuſt et Scheiffer 1465. pet. in folio.—Jo. Sanuensis Catholicon, folio. Aug. Vin. del. Gunther, Zeiner et Reutlingen, 1649.—Firſt edition of Petrarcha Venet. Vindel de Spira, 1470. See Cat. de la Valliere, 1783. No. 353.—Firſt edition of Dante, C. Fulginei Neumeiſter 1472. See la Valliere, No. 3558.—Boccacio Genealogia Deorum et liber de Montibus et Sylvis. Venet. Vindel. de Spira, 1472 and 1473. Firſt edition.—De Claris Mulieribus. Ulma Sv. Zeiner, 1473. Firſt edition, with wooden cuts, very ſingular. See Catalogue de la Valliere, No. 3810 and 5609.—Boccacio Decamerone Venet. Gio. et Gregor. de Gregorii fratelli, 1492, folio, wooden cuts. The Decameron tranſlated into German, about 1475, folio.—Mamontreclus Beronæ p. Helian Helix, 1470, folio. This book was printed at Munſter, in the canton of Lucerne, and is curious, becauſe it is the firſt inſtance of typography in Switzerland.

Kuffnach, a small village on the east side of the lake, where we paid a visit to a gentleman, and were served with tea, slices of bread and butter, and cherries.

In 1778, Kuffnach was considerably damaged by the rise of a small torrent, which rushed down the mountains, carried away twenty-five houses, and destroyed about sixty persons. This torrent, now only a little rill, swelled to such a degree, as to rise at least thirty feet above its usual level; an increase owing to the sudden melting of the snow on the neighbouring heights. Every assistance was instantly afforded to the wretched inhabitants, and a collection of £3000 raised in one Sunday at the different churches of Zurich: an astonishing collection for a town which does not contain 11,000 souls.

I am indebted to Professor Meister for several observations* on the population, industry, and productions of Kuffnach, and the neighbouring villages.

Having rested ourselves about an hour at Kuffnach, we continued our walk through vineyards and corn-fields, sometimes on the sloping banks of the lake, sometimes on a small foot path formed on terraces upon a level with the water; or along narrow roads that resemble gravel walks winding through pleasure-grounds and parks in England. We enjoyed, during great part of the way, the most agreeable shade from large beech and oak, walnut and other fruit-trees, that overhang like weeping willows; many of which are planted almost horizontally, either stretching from the sides of the hill, or from the margin of the water, their boughs dipping into the lake: the scattered cottages, the numerous villages, the picturesque villas placed on the banks, and several neat churches, added to the beauty of the ever-changing scenery.

Having continued our walk about three miles, we stopped at a peasant's house in Meile, who regaled us with our usual fare, milk and cherries, but would receive no recompense. Here we embarked and crossed the lake, enjoying a most agreeable view of each border studded with villas, churches, and villages, half concealed by the intervening trees. As we passed near a bold promontory, richly covered with wood, we observed the sun, which was hid under a cloud, gilding the distant town of Rap-

* Kuffnach contains about 1700 souls, and the neighbouring villages are no less peopled: this astonishing population in so small a compass is occasioned by the trade of the capital, which employs many hands. The proportion between the produce of the soil, and the profits derived from working for the manufactures, may be estimated from the following calculation: five parishes and two villages, situated near the lakes of Zurich and Greiffen, contain 8498 souls; and comprehend only 6057 acres of arable land, 698 of vines, and 3407 of pasture, or scarcely an acre and a quarter for each person. Their subsistence is principally supplied by 2016 looms, by means of which they prepare silk and cotton for the merchants of Zurich. In these parts an acre is sold for £100 or £120; whereas the same quantity in the interior part of the canton is worth only £20, or £30. The acre here mentioned contains from 32,000 to 36,000 square feet.

In sixteen parishes, situated on the borders of the lake, the number of inhabitants, in 1784, were 32,581. There were 21 marriages, 1135 births. The proportion of the marriages to the births, as 1000 to 5183; of the births to the deaths, as 1000 to 882; of the births to the living, as 1000 to 18,705; of the deaths to the living, as 1000 to 12,515; of the males to the females, as 1000 to 1097.

I have already observed in the note (p. 63.), that these borderers of the lake were the first to adopt the French principles and had a chief share in promoting the subjection of the canton.

During the effervescence of the revolution their grievances were exaggerated, and they were compared with the African slaves in the West Indies. They were certainly excluded by the commercial government of Zurich from some rights, which they ought to have enjoyed; but their condition upon the whole was extremely easy and comfortable, as sufficiently appeared from the flourishing state of the country. Even General Schawembourg, as he sailed up the lake, and observed the borders, luxuriant in cultivation and industry, and with every mark of prosperity, could not avoid exclaiming, "Il est cependant difficile de retrouver ici les traces du despotisme."

In fact, these borderers had no sooner effected a change in the constitution, and obtained possession of power, than they wished to retain it; and, attempting to resist the aggression of the French, they were disarmed, pillaged, and fined.

perschwyl, the hills towards Zurich silvered by a milder ray, and the sublime mountains of Glarus rising in gloomy majesty from the southern extremity of the lake.

We landed at Weddenschweil, which is agreeably situated on the west side of the lake. It is the capital of a baillage, that stretches to the limits of the cantons of Zug and Schweitz, and was formerly an independant lordship. In 1287 it was sold by Rodolph of Weddenschweil to the knights of Jerusalem; and became a commandery until 1459, when Zurich purchased it from the master of that order for 20,000 florins. The inhabitants, having revolted in 1466, were deprived of several privileges, and particularly the criminal jurisdiction, which was transferred to the senate of Zurich. Notwithstanding the loss of these immunities, the mildness of government is sufficiently manifested, by the considerable increase of the population within this last century; the number of souls, which in 1678 consisted of only 4867, amounted in 1782 to 8188.

Near Weddenschweil, a beautiful meadow, skirted with wood, and fertilized by a lively stream, tempted us to quit the road, and we had scarcely proceeded fifty paces before we saw a silver rill gushing from the crevice of a rock fringed with wood. While we where contemplating this pleasing landscape, we heard the noise of falling waters, and caught a glimpse of a torrent tumbling from an elevated rock, glistening through the dark foliage, and richly illumined by the rays of the sun, which was concealed from our view. Having penetrated by the side of the torrent, we saw it bursting from the height, amid surrounding trees, fall about six feet upon a ridge, and then roll fifty feet in mid air. The effect was peculiarly striking. Nor could we sufficiently admire the amphitheatre of rock, the beeches suspended on its top and sides; the beams of the sun darting on the falling waters, and the noise of the torrent contrasted with the mild and tranquil beauties of the lake.

Our walk to Richliswick, where we passed the night, was no less agreeable than that on the other side of the lake. The road ran sometimes through meadows, at a little distance from the lake, sometimes close to the water, under the shade of trees scattered by the hand of nature, in the most capricious shapes: we scarcely advanced a hundred steps without passing a neat cottage, and meeting with peasants, who saluted us as we went along; every spot of ground is highly cultivated, and bore the appearance of industry and plenty.

At Richliswick, which, like Weddenschweil, contains many good houses of stone, plaistered and white-washed, ornamented with green window-shutters, and Venetian blinds, we found an inn with comfortable accommodations. This place is the passage of much merchandize to different parts on the shores of the lake; and is greatly resorted to by the pilgrims, in their way to Einsidlin*.

Early the next morning we embarked for the isle of Ufnau: The weather was uncommonly fine, the lake quite still, the reflection of the white houses quivered on the surface of the water; the hollows of the distant mountains seemed to be filled with a transparent vapour, which induced me to cry out, in the language of poetry,

* These once happy districts on both sides of the lake of Zurich, after an undisturbed tranquillity of three hundred years, became, in May 1798, the scene of devastation and carnage, in the unequal conflict between the French and the Swiss peasants of the small cantons, who rose to defend their liberties, and, after entering Lucerne, marched in two bodies on each side of the lake, to drive the French from Zurich. After an obstinate resistance against superior forces, the corps on the north side of the lake were defeated with great slaughter, and Rapperschwyl stormed and pillaged. Five thousand Swiss, stationed near Richterschwyl, repulsed the French at the first onset, but with the aid of artillery were at length overpowered. Their spirited resistance even extorted the applause of the French commander.

" Pleasant the sun,
 " When first on this delightful land he spreads
 " His orient beams, on herb, tree, fruit and flower,
 " Glist'ring with dew *."

About a mile from Richliswick is a single house standing on a gentle acclivity, the walls of which divide the canton of Zurich from that of Schweitz, and at the same time set instant bounds to that industry and population which had attracted our wonder and delight.

In two hours we landed at Ufnau, which is about an English mile in circumference and belongs to the abbey of Einsidlin. It contains only a single house, inhabited by a peasant's family, two barns, a kind of tower summer-house, seated on the highest point, a chapel never used, and a church in which mass is said only twice in the year. Within is the tomb of St. Alderic, who built an hermitage on the island, to which he retired. He died in 1473, and was highly revered for his supposed sanctity; as a Latin inscription informs us, that " he was fed with bread from heaven, and walked upon the surface of the waters." This island is sometimes called Hutten's Island, in memory of that extraordinary person, who retired and died in this obscure spot.

Hutten, descended from an illustrious family, was born at Seckenberg in Franconia, and receiving an education suitable to his birth, prosecuted his studies with that impetuous zeal which was the leading mark of his character. He passed a life of almost unparalleled vicissitude; sometimes in the camp, signalized for personal courage: in universities, where he distinguished himself by various publications; in courts, received with respect, or driven away for insolence; and wandering over different parts of Europe in extreme indigence. Having, at an early period of his life, embraced the opinions of Luther, he used both his pen and his sword in defence of the new doctrines; was so intemperate in his ardour, that he was frequently imprisoned, and alarmed even the daring spirit of Luther by his repeated outrages. After rendering himself an object of terror both to Lutherans and Catholics, he in vain sought repose until he found it in this sequestered island. He expired in 1523, in the 36th year of his age: a man as remarkable for genius and learning, as for turbulence and presumption.

The island is agreeably broken into hill and dale, is extremely fertile in pasture, produces hemp, flax, a few vines, and a small tufted wood, which overhangs the margin of the water. It is the only island in the lake of Zurich, except an uninhabited rock, which yields a small quantity of hay.

Having re-embarked, we soon landed at Rapperschwyl †, and continued ascending amid hanging enclosures of pasture and corn, commanding a fine view of the lake, hills, mountains, and Alps. Passing the little territory belonging to Rapperschwyl, we came into the canton of Zurich, and entering a neat cottage, to enquire the road, we saw a peasant teaching about thirty children to read and write. On expressing my satisfaction, I was informed that each village has a peasant schoolmaster, either entirely or partly paid by government; and that in this canton there is scarcely a child who is not instructed in reading and writing. A little further we entered another cottage, where the mistress of the house offered us milk and cherries, and placed upon the table nine or ten large silver spoons.

We continued our walk through an enclosed, hilly, and well-wooded country, and arrived about mid-day at Grunengen, a small burgh, capital of the bailliage. After dinner we paid a visit to the bailif, who resides in the castle, which stands on an elevated

* Milton's *Paradise Lost*.

† See Letter 7.

rock, overlooking an extensive prospect; towards the south wild and romantic, towards the west rich and well cultivated, and watered by a lively stream which flows from the lake of Pfeffikon.

The bailif possesses considerable authority. He judges civil and criminal affairs, in the presence of certain jurymen and the under-bailif; but can pass sentence without their concurrence, as neither of them enjoys a vote. He can punish all crimes which are not capital; can order whipping, or even the torture, to be inflicted, when the criminal is convicted, and will not confess; and I was greatly shocked to find that this horrid expedient had been lately practised. Even in capital cases he can condemn to death, provided he summons eighty jurymen from the different districts to be present at the trial; but as this custom is attended with much expence, he usually sends the culprit to Zurich; in civil proceedings an appeal lies from his decision to the senate of Zurich.

If the bailif abuses his power, the senate readily listens to the complaints of the oppressed, and would not fail to punish the unjust judge. An instance of this impartiality occurred in 1754, when the bailif was proved guilty of extortions, and, though son-in-law to the burgomaster, was fined and banished from Switzerland. I learned this fact, on observing a vacant place in the series of arms belonging to the several bailifs, which are painted in the hall of the castle; those of the extortioner, which once filled this vacant place, had been erased by order of government. From Grunengen we pursued our course through lanes, fields, and enclosures along a most delightful country, abounding in vines, corn, pasture, and wood. As the setting sun gradually descended below the horizon, we frequently looked back upon the distant Alps, the lower parts were dusky and gloomy, and the summits.

“ Arrayed with reflected purple and gold,
“ And colours dipt in heav’n*.”

At the close of the evening I arrived at Ustar; regretting that our day’s journey was concluded, and not feeling in the least fatigued with a walk of eighteen miles, from Rapperschwyl to Ustar; so greatly was I delighted with the beauties of this romantic country. Ustar is a large parish, containing 3000 souls; the wooden cottages are neat and commodious, resembling those in the canton of Appenzel, and are dispersed in the same manner over hills and dales.

The sun had scarcely risen before we quitted our beds, and walked to the castle of Ustar; it stands boldly on elevated rock, planted to its very summit with vines, and commands a most extensive view, bounded by the Jura, the mountains of the Black Forest, and the chain of Alps stretching from the canton of Appenzel to the confines of the Vallais. Below and around, the country resembled the most cultivated and enclosed parts of England; a small lively stream winded through an immense plain; while the lake of Greiffen appeared like a broad river, washing the bottom of the adjacent hills.

This castle was formerly a strong fortress, and the residence of the counts of Ustar, who held it and the district as a fief from the counts of Ravenspurgh; and on the extinction of that house, in the middle of the fourteenth century, it was transferred to the family of de Bonstet; was purchased, in 1552, by Zurich, and united to the baillage of Greiffensee. M. de Bonstet, whom I have mentioned as one of our party, derived great satisfaction in tracing the antiquity and history of this seat, formerly possessed by

* Milton.

his ancestors, and in observing the family arms painted upon the glass windows. This castle is now a private gentleman's house, and belongs to M. Teyler of Weddenschweil.

From Uster we crossed the fields, and arrived at the lake of Greiffen. We walked for some way on a belt of turf, along its borders, under the pendulous branches of oak, beech, and elms. This lake is about six miles long and a mile broad; on one side the shores are flat or gently rising, on the other side hills richly wooded. The dearth of cottages and inhabitants, in this delightful but solitary spot, formed a striking contrast with the numerous villages we had recently quitted; while the southern extremity of the lake seemed almost bounded by that magnificent chain of alps, which constantly engaged our attention.

Having embarked in a small boat, we passed the village of Greiffen, pleasingly situated on a small promontory embosomed in a wood, and landed at the northern extremity of the lake. Here I bathed, and walked on gently, ascending through fertile grounds, delightfully planted with oak, beech, and poplars, and innumerable fruit-trees. At a small village we stopped at the parsonage. You can scarcely form to yourself an adequate idea of the neatness and simplicity which reign in these parts. The clergyman's two daughters, about fifteen or sixteen years of age, neatly dressed, with straw hats, like the peasant girls of the country, politely brought milk and cherries for our refreshment. From this retreat of innocence and simplicity we ascended about a mile, then burst upon a charming view of Zurich, the lake and environs; and gently descending, arrived at Zurich, quite enchanted with this short expedition.

An expedition to the summit of the Lagerberg was no less agreeable than the former excursion. I procured a guide and a horse; but the weather proving fine, I gave the horse to my servant, and preferred walking across the corn fields, and meadows tufted with thickets, and enlivened by the numerous labourers employed in the harvest. In these parts as well as the neighbouring districts, I observed with pleasure, that the oxen, which were not yoked to the teams or ploughs, but harnessed like horses, performed their labour with much more ease, and with greater effect. This custom has been lately introduced into some parts of England; and all unprejudiced farmers allow its superior advantage; as the yoke is extremely galling, and four oxen harnessed with collars will do as much work as six when yoked by the neck.

A few miles from Zurich, I passed through the village of Affholteren, near the church, which is prettily situated in the middle of a large field; skirted the small lake Kasten, at a little distance from the picturesque ruins of Old Regensberg, and gently ascended to New Regensberg, which stands on an elevation, at the foot of the Lagerberg.

The counts of Regensberg were powerful barons during that period of anarchy and confusion which distinguished the twelfth and thirteenth centuries; they were involved in constant wars, or rather desultory skirmishes, with the town of Zurich, until they were finally repulsed by Rodolph of Hapsburg, then captain-general of the troops of Zurich. On the extinction of the counts of Regensberg, in the fourteenth century, their territory devolved to the House of Austria, and in 1409 became subject to Zurich.

The present burgh contains about 200 inhabitants, who enjoy considerable privileges: a burgo-master, and a council of six members, form the civil court of justice, from whose decision an appeal lies to Zurich; the criminal jurisdiction belongs to the bailiff, who resides in the castle. This building was formerly of great strength, and frequently defied the attacks of Zurich. The greater part of the present edifice was constructed in the last century; the only remains of the ancient fortress being some stone walls, and

and a round tower, which commands a distant prospect. A well in the middle of the burgh, hollowed in the rock to the depth of 216 feet, but now dry, furnished the garrison with water during the obstinate sieges maintained before the invention of gunpowder. Near this well is a copious fountain, supplied from a spring that rises in the Lagerberg. The adjacent country is a most delightful intermixture of hill and dale. The rock on which Regensberg is built, terminates in an abrupt precipice, and forms the eastern extremity of that vast chain of mountains known by the general name of Jura, the branches of which are distinguished by different appellations. The branch that rises from this point is called the *Lagerberg*, to the summit of which I mounted on horseback. I passed for some way through cultivated enclosures, and afterwards through forests of pine, fir, and beech, until I reached the highest point, on which stands a signal house. From this point, which overlooks the whole country, I enjoyed one of the most extensive and uninterrupted prospects, particularly the finest distant view of the Alps, which I had yet seen in Switzerland.

To the north, the eye expatiates freely over the wilds of the Black Forest; to the east, beyond the confines of Bavaria; towards the west, traces the branches of the Jura extending in multifarious directions; to the south, looks down upon the fertile and enclosed regions in the canton of Zurich, on the lake and its populous banks, and admires the vast expanse of country swelling from plains to acclivities, from acclivities to hills, from hills to mountains, and terminating in those stupendous Alps,

“ Whose heads touch heaven.”

This wonderful and sublime prospect detained me insensibly till the close of the evening, when I descended through the dark forests that clothe the sides of the Lagerberg; and, filled with those pleasing but melancholy reflections which the indescribable beauties of nature leave upon the mind, rode slowly on, and did not arrive at Zurich till the gloom of night had overspread the horizon.

LETTER XI.—*Winterthur.—Castle of Kyburg.*

WINTERTHUR stands about twelve miles from Zurich; a town which, although situated in the canton, and under the protection of Zurich, yet retains its own laws, has its own magistrates, and is in a great measure independent. Winterthur was formerly governed by its own counts, who were probably a branch of the Kyburg family, for both houses bore the same arms. In the fourteenth century it was possessed by Hartman, count of Kyburg, who first surrounded it with walls; and upon his death devolved to his nephew Rodolph of Hapsburg. Rodolph, afterwards emperor, conferred upon the inhabitants considerable privileges, for assisting him in the war in which he was engaged with Ottocar, King of Bohemia. It continued subject to his descendants until 1424, when the inhabitants claimed the protection, and obtained the alliance, of Zurich. In 1467, the Archduke Sigismund having sold his rights to Zurich, that canton succeeded to his prerogatives. A deputy from Zurich resides at Winterthur, but for no other purpose than collecting the toll, half of which belongs to Zurich.

The government is aristocratical; the supreme power, in all things not interfering with the claims of Zurich, resides in the Great and Little Council. These two tribunals united are final judges in criminal procedures, and pass sentence of death without appeal. The Little Council is invested with the general administration of affairs, and determines civil causes in the first resort; from their decision an appeal lies to the

Great

Great Council, and in all processes between a stranger and a burgher, to the senate of Zurich.

Although the town is considered as independent, and only under the protection of the canton, yet Zurich claims the right of restricting the inhabitants from manufacturing silk, and from establishing a printing-press, as interfering with the natives of Zurich: This claim has occasioned great discontents, and giving rise to much litigation: and though Zurich does not prohibit the manufacture of silk, yet by forbidding the peasants of the canton from preparing and spinning the materials, this order amounts to a virtual prohibition. A similar dispute is in agitation concerning the establishment of a printing-press at Winterthur. The right will scarcely be controverted; but as the cause will be finally determined by Zurich, it remains a doubt whether that government will be sufficiently disinterested to decide in favour of Winterthur against its own burgher.

In all other respects, excepting in these two articles of trade so profitable to Zurich, the commerce of Winterthur lies under no restraint. The principal manufactures are muslins, printed cottons, and cloth; some vitriol works are carried on with considerable success.

The town is small and the inhabitants, who amount to about two thousand, are for the most part remarkably industrious. The schools in this petty state are well endowed and regulated. The public library contains a small collection of books, and a great number of Roman coins and medals, chiefly found at Ober-Winterthur; among the most rare I observed a Didius Julianus and a Pertinax. Ober-Winterthur, or Upper Winterthur, at present only a small village near the town, in the high road leading to Frauenfeld, is the site of the ancient *Vitodurum*, a Roman station, and the most considerable place in this neighbourhood. It exhibits no other remains of former consequence, but the foundations of ancient walls, and the numerous Roman coins and medals which are continually discovered. The Roman way, which once traversed the marshes between Winterthur and Frauenfeld, is no longer visible, because it forms the foundation of the present high road*.

The castle of Kyburg, towering on the summit of an eminence overlooking Winterthur, is a picturesque object, remarkable in the history of this country, during the times of confusion which preceded and followed the interregnum of the empire.

In the beginning of the twelfth century, the counts of Kyburg possessed the counties of Kyburg, Lentzburgh, and Baden; and their territories were further increased by the accession of Burgdorf and Thun, which fell to Ulric† in right of his wife Anne, sister and heir of Berchtold V. Duke of Zæringen. These domains devolving, in 1273, to Rodolph Count of Hapsburg, on the death of his uncle Hartman the elder, the last Count of Kyburg, rendered him one of the most powerful princes in these parts, and probably opened his way to the imperial throne. Before his decease, the Emperor ceded to his son Rodolph the county of Kyburg, and his other dominions in Switzerland; and, on his demise, confirmed this grant to his grandson John, the same who assassinated his uncle, the emperor Albert‡, and was called the Parricide.

Upon the death of Albert, his sons seized and kept possession of Kyburg, and the other hereditary domains in Switzerland, and transmitted them to their posterity. In

* Winterthur is now incorporated in the canton or department of Zurich.

† Some authors assert that Werner, son of Ulric, was the husband of Anne. Great confusion reigned in the early history of the counts of Kyburg, until Fuesli cleared it up. See article Kyburg in Fuesli's *Erbschreibung*.

‡ See Letter 14.

1424, the Emperor Sigismund put under the ban of the Emperor-Frederic Duke of Austria, and granted for a sum of money the county of Kyburg to Zurich. In 1442 it was restored to the House of Austria, but, in 1452, finally ceded to Zurich by Sigismund, Archduke of Austria, to liquidate a debt which he owed to the canton. From that time it has formed a bailliage in the canton of Zurich; but the title of Count of Kyburg has been always used by the House of Austria, and is still retained by its present illustrious descendant Joseph the Second.

The castle of Kyburg, which stands in a romantic and wild situation, has been constructed at different periods. Part is ancient, and not improbably the same as existed in the time of Rodolph; although I could not discover a date anterior to 1424, the year in which it was granted to Zurich. In an apartment which was formerly a stable, are the portraits of all the bailiffs who have resided in the castle from the time of its cession. The bailiff enjoys greater powers than are usually delegated by any aristocratical government; in criminal proceedings, he is only required to consult the jury of the district, though he is not bound by their opinion, and can even inflict capital punishment without the necessity of referring the sentence to be confirmed by Zurich.

LETTER XII.—*Frauenfeld.*—*Of the Helvetic Confederacy.*—*Diets.*

FROM Winterthur I passed to Frauenfeld, a small town, or rather village, the capital of Thurgau*, containing scarcely a thousand inhabitants; and only remarkable as the place where, since 1712, the deputies of the Swiss cantons assemble at the general diet.

This confederacy owes its origin to the treaty contracted between Uri, Schwyz, and Unterwalden, at the memorable revolution of 1308†. The subsequent accession of Zurich, Bern, Lucerne, Zug, and Glarus, gave strength and solidity to the union, and a century and a half elapsed before a new member was admitted. At length, in 1501, Friburgh and Soleure being, after much difficulty, received into the league; upon that occasion the eight ancient cantons entered into a covenant, called the *Convention of Stantz*, by which the articles of union and mutual protection were finally settled‡.

No change was effected by the subsequent reception of the three remaining cantons, Basle, Schaffhausen, and Appenzel; as they subscribed to the same terms which Friburgh and Soleure had accepted. Without entering, however, into a minute detail, I shall endeavour in this letter, to lay before you a short view of the Helvetic confederacy.

The code of public law between the combined republics of Switzerland, is founded upon the treaty of § Sempach 1393; upon the convention of Stantz; and upon the treaty

* Thurgau was a bailliage subject to the eight ancient cantons. In the beginning of February the people in some parts of the country rose, elected deputies, and demanded their emancipation, which seems to have been granted to the inner district on the 5th. The people, however, were in general much incensed against the French, and their troops were marching to the assistance of Bern, when the capture was announced.

In the new division of Switzerland, Thurgau was formed into a canton, of which Frauenfeld is the capital.

† See Letter 25.

‡ See Letter 26.

§ This treaty, which regulates the articles of war, was contracted between the eight ancient cantons, in conjunction with the republic of Soleure. It ordains that no Swiss soldier shall quit his ranks in time of

treaty of peace concluded in 1712, at Arau, between the Protestant and Catholic cantons. It appears from these several treaties, which include or enlarge those that preceded, that the Helvetic union is a perpetual *defensive* alliance between the thirteen independent contracting powers, to protect each other by their united forces against all foreign enemies. Accordingly, if any member of the union should be attacked, that particular canton has a right to demand succours from the * whole confederate body; and in case of war the several forces to be supplied by each canton are precisely specified. It appears, however, from the stipulations to which the five cantons agreed that they do not, in every respect, enjoy equal prerogatives with the eight ancient cantons, which reserved to themselves a right, if the question for declaring war against any foreign state should be *unanimously* carried in their assembly, to require the assistance of the five other cantons, without assigning the motive. But the five cantons cannot commence hostilities without the consent of the confederates; and should the enemy be willing to enter into a negociation, the dispute must be referred to the arbitration of the eight ancient cantons. It is further stipulated, that, in case of a rupture between the eight cantons, the five must observe a strict neutrality.

The next essential object of the league is to preserve general peace and good order. It is therefore covenanted, that all public discussions shall be finally settled between the contending parties in an amicable manner; and for this purpose particular judges and arbiters are appointed; who shall be empowered to compose the dissensions that may happen to arise. To this is added a reciprocal guarantee of the forms of government established in the respective commonwealths: for, in order to prevent internal factions, and revolts in any of the allied cantons, it was agreed by the convention of Stantz, that, in time of rebellion, the magistracy of such canton should be assisted by the forces of the others. Accordingly, the history of Switzerland affords many instances of protection and assistance reciprocally given between the confederates, in defence and support of the respective governments.

action, even although he should be dangerously wounded: “ Nous entendons aussi que si quelqu'un s'estoit blessé en quelque façon que ce fust en combattant ou en assaillant, de sorte qu'il seroit inutile pour se défendre; il demeurera non obstant aussi avec les autres, jusques à ce que la bataille soit expirée: et pour cela ne sera estimé fuyard et ne l'en fâchera-t-on en sa personne n'y en son bien aucunement.”

* The respectable author of the *Account of Switzerland* has fallen into a mistake in his description of the Helvetic union; and his error has been adopted by the Abbé Mably, in his *Droit Public de l'Europe*; by the compilers of the *Encyclopédie*; and by several other writers of distinction.

After having given a description of the Helvetic union, he concludes the relation as follows: “ So far are they (the thirteen cantons) from making one body or one commonwealth, that only the three old cantons are directly allied with every one of the other twelve. There is indeed such a connection established between them, that in case any one canton were attacked, all the other twelve would be obliged to march to its succour; but it would be by virtue of the relation, that two cantons may have to a third, and not of any direct alliance subsisting between every one of them. As for example: Of the eight old cantons, Lucerne has a right of calling but five to its succour, in case of attack; but then some of those five have a right of calling others, with whom they are allied, though Lucerne be not; so that at last all must march by virtue of particular alliances, and not of any general one amongst them all.”

The above-cited account of the Helvetic union would better have suited the league of the eight cantons before the convention of Stantz; when the confederate states were not so absolutely and directly united together as they are at present; and their alliance did not perhaps totally exclude every treaty of the same kind with other powers. It was only by the articles of that celebrated convention, and the alliance of the eight cantons with Friburgh and Soleure, that the union became absolutely fixed and general. It must be confessed, however, that several Swiss historians have given the same idea of the Helvetic union as that above mentioned; and that even now authors differ considerably upon some important articles of the league.

No separate engagement, which any of the cantons may conclude, can be valid, if inconsistent with the fundamental articles of this general union; for the reciprocal contract between the members of the league supercedes every other species of public obligation. With these exceptions, the combined states are independent of each other: they may form alliances with any power, or reject the same, although all the others have acceded to it*: may grant auxiliary troops to foreign princes; may prohibit the money of the other cantons from being current within their own territories; may impose taxes, and, in short, perform every other act of absolute sovereignty.

The public affairs of the Helvetic body and their allies are discussed and determined in the several diets; and these are,

1. General diets; or general assemblies of the thirteen cantons, and of their allies.

2. Particular diets; as those of the eight ancient cantons; those of the Protestant cantons, with the deputies of the Protestants of Glarus and Appenzel, of the towns of St. Gallen, Bienne, and Mulhausen, called the *evangelical conferences*; those of the Roman Catholic cantons, with the deputies of the Catholics of Glarus and Appenzel, of the abbot of St. Gallen, and of the republic of the Vallais, called the *golden alliance*; as also the diets of particular cantons, which, beside being members of the general confederacy, have distinct and separate treaties with each other.

The ordinary meetings of the *general* diet are held once a-year, and continue sitting one month; the extraordinary assemblies are summoned upon particular occasions. It is principally convened in order to deliberate upon the best measures for the security of the Helvetic body. The canton of Zurich appoints the time and place of meeting, and convenes the deputies by a circular letter. The deputy of Zurich also presides, unless the diet is held in the territory of any other canton; in that case, the deputy of that canton is president.

This diet formerly met at Baden; but since the conclusion of the civil war in 1712, between Zurich and Bern on one side, and Lucern, Uri, Schwitz, Underwalden, and Zug, on the other, (when the five latter renounced the co-regency of Baden,) it has been assembled at Frauenfeld† in Thurgau. Each canton sends as many deputies as it thinks proper.

It would be descending into a tedious detail, to enter into the particular connections of the several allies, either with the whole Helvetic body, or with some of the cantons; and the different nature of these respective alliances. Suffer me only to remark, that the allies may be divided into *affiliate*, and *confederate* states: of the former are the abbot and town of St. Gallen, Bienne, and Mulhausen; of the latter, are the Grisons, the republic of the Vallais, Geneva, Neuchatel, and the bishop of Basle.

* The five cantons which agreed not to conclude any treaty without the consent of the eight, are necessarily excluded from this power, together with those particular cantons, which have bound themselves by private treaties not to contract any foreign alliance, without the reciprocal consent of the others; as for instance, Uri, Schwitz, and Underwalden, by the alliance at Brunnen in 1315. But this depends upon particular treaties, and has no relation to the general union. In fact, every canton is restrained by the general articles of the Helvetic union; but, conforming to those, no one republic is, in any other instance, controlled by the resolutions of the majority among the confederate cantons.

† Frauenfeld is no longer the scene of a free diet; in the French division of Switzerland it became the capital of the canton or department of Thurgau.

The last diet of FREE SWITZERLAND assembled at Aarau in January 1798, and all the deputies, that of Basle excepted, which withdrew from the confederacy, took an oath to defend the Helvetic constitution to the last extremity. But this solemn appeal to heaven in defence of their liberties proved a mere ceremony, and produced no substantial effect.

The states thus comprised under the general denomination of associates and confederates, enjoy by virtue of this union, a total independance on all foreign dominion; and partake of all the privileges and immunities granted to the Swiss in other countries. And notwithstanding some of these states are allied only with particular cantons; yet if any of them should be attacked, those cantons with whom they are in treaty would not only supply them with succours, but would also require the joint assistance of the remaining cantons: if therefore any part of the whole body should be invaded, all the other members should unite its defence, either as immediate guarantees, or as auxiliaries of the actual guarantees*.

LETTER XIII.—*Route by Water from Zurich to Baden.—Bridge of Wettingen.—Baden.—Castle of Hapsburg.*

INSTEAD of following the usual route by land from Zurich to Basle, we proceeded the greater part of the way by water. We embarked about two in the afternoon on the Limmat. The navigation of that river has been described as extremely hazardous; yet it is only dangerous upon the melting of the snow, or after violent rains, when in several places the rocks and shoals are covered with water. At other times there is no danger, provided the watermen are sober and experienced.

Our boat was flat-bottomed and long, and was rowed, or rather steered by three watermen, who used their oars merely to direct the vessel; the stream being sufficiently rapid to carry us along at the rate of six, eight, and sometimes even ten miles in the hour. The water is beautifully transparent; and its surface was occasionally raised and agitated with high waves by a wind opposite to the current. The borders of the Limmat, at first somewhat flat, afterwards gentle rose into hills clothed with pasture and wood, or divided into vineyards, were lastly quite perpendicular, and fringed to the water's edge with hanging trees.

About a mile from Baden, where the Limmat flows with the greatest rapidity, we shot under the bridge of Wettingen with such velocity, that in the moment of admiring its bold projection on one side, I imperceptibly found myself on the other. This beautiful piece of mechanism is a wooden bridge, two hundred and forty feet in length, and suspended above twenty feet from the surface of the water: it was the last work of Grubenman, the self-taught architect, and is far superior in elegance to that of Schaffhausen.

We landed at Baden, and walked to Hapsburg, Schintznach, Koningsfelden, and Windisch; of which places I shall give you a short description.

Baden derives its name from the neighbouring warm baths, which are mentioned by the ancients under the names of *Aquæ* and *Thermæ Helveticæ*. It was a Roman fortress, erected to curb the *Allemanni* or Germans, and was raised, when the Helvetians, who supported Otho, were routed by Cæcina, general to Vitellius. Being rebuilt, it was taken by the Germans; fell afterwards under the dominion of the Franks; was, in the tenth century, incorporated in the German empire; and became successively subject to the Lukes of Zæringen, to the Counts of Kyburg, and to Rodolph of

* Such was the theory of the Helvetic Government, but unfortunately the practice did not accord with the theory. The Swiss States, instead of resisting in a compact body the aggression of the French, acted without concert or unanimity, and were compelled, one after the other, to dissolve their ancient confederacy.

Hapsburg. In 1418, when his descendant Frederic, Duke of Austria, was put under the ban of the empire, the canton of Zurich took possession of the town and country; and, having purchased them from the Emperor Sigismund, admitted to a joint share in the sovereignty, Lucern, Uri, Schweiz, Underwalden, and Zug, Bern in 1426, and Uri in 1445.

Baden continued a bailliage of these eight cantons until the year 1712, when the civil war breaking out between the Protestant and Catholic cantons, it was besieged and taken by the troops of Zurich and Bern; and at the peace of Arau was ceded to those two cantons and Glarus, which, on account of its neutrality, preserved its right of joint-sovereignty. Zurich and Bern did not, however, prove their disinterestedness, when not content with finally settling the religious disputes in favour of the Protestants, they exacted from the Catholic cantons the cession of Baden, contrary to the convention of Stantz, which forms the basis of the Helvetic constitution. The umbrage conceived by the Catholic cantons at this step was the principal inducement to conclude a perpetual alliance with France in 1715, and to throw themselves under the protection of that power. And this separate league has not been annulled by the general treaty which Louis XVI. contracted with the thirteen cantons in 1776. Until 1712, the diet assembled at Baden; but has been since transferred to Frauenfeld. The three cantons alternately appoint a bailif, who resides in the Castle.

The inhabitants elect their own magistrates, and have their own judicial courts. In civil proceedings, an appeal lies to the bailif, and from his decision to the syndicate, composed of the deputies of the three cantons, and in the last resort to the three cantons themselves. In penal causes, the criminal court condemns, and the bailif enjoys the power of pardoning, or mitigating the sentence. The county or bailliage contains about 24,000 souls*.

From Baden we walked through an agreeable and well-wooded country for some way, along the side of the Limmat, whose steep banks are covered with vines to the edge of the water; and in about two hours crossed the Reuss into the canton of Bern. Having passed through a plain, we arrived at the baths of Schintznach, a place remarkable for its agreeable position on the banks of the Aar, and its tepid mineral waters. It is also well known as being the first place where the Helvetic society assembled. This society, formed by some of the most learned men in Switzerland, both of the Catholic and Reformed religion, first helped to extend the spirit of toleration, and to lessen that antipathy which subsisted between the members of the two persuasions. Its publications have tended to promote a general zeal for the diffusion of polite literature. The meeting of this liberal society is now transferred to Olten, a small town in the canton of Soleure.

Near Schintznach stands, on a lofty eminence, the ruins of the castle of Hapsburg, to which we ascended through a wood of beech, that seemed almost coeval with the date of the castle. The ruins consist of an ancient tower, constructed with massive stones, in a rude style of architecture, and part of a small building of much later date.

It was erected in the beginning of the eleventh century, by Werner, Bishop of Straßburg, came to his brothers Radebot and Latzelin, and devolved to their descendants. Otho, grandson of Radebot, was probably the first person upon record who styled himself Count of Hapsburg, and it continued to be the principal title by which

* In the new division of Switzerland, the bailliage of Baden was converted into a canton or department, of which that town is the capital.

his posterity was distinguished, until it was lost in a greater dignity, when Rodolph of Hapsburg was elevated to the imperial throne. His successors granted the castle and its dependencies as a fief, first to the lords of Wildeck, and afterwards to the lord of Wölen: in 1415 it was occupied by Bern, during the contest between the Emperor Sigismund and Frederic of Austria, and given to the family of Segefern of Bruneck. In 1469, it was sold to the convent of Königsfelden; on the dissolution of that monastery at the reformation, was secularised, and seized by government; has gradually gone to decay, and is now inhabited by a peasant's family.

This castle commands an unbounded view over hills and dales, plains and forests, rivers and lakes, towns and villages, mountains and alps; emblem of that extent of power to which the talents of *one man*, who derived his title from this castle, raised himself and his descendants. You will readily perceive I allude to Rodolph of Hapsburg, who, from a simple baron of Switzerland, became Emperor, and founded the House of Austria.

Rodolph was born in 1218. Having signalized his youth in constant scenes of warfare and contention, he was, in 1273, unexpectedly raised to the dignity of Emperor, and conferred honour on that exalted station, no less by his political sagacity than by his military prowess. He died in 1291, after a long and glorious reign, and in the seventy-third year of his age.

Impressed with these ideas, as I considered on the very spot, the origin of the House of Hapsburg, and its gradual progress towards that height of power which it has since attained under the more distinguished appellation of the House of Austria: I compared it to a small rill in the Alps, whose source is uncertain, which, having received several streams, forms no inconsiderable river. Flowing through Switzerland still almost unknown to its neighbours, it no sooner enters Germany, than it loses its name by its junction with the Danube; and, having collected the tribute of numberless rivers, rolls, with accumulated and still increasing waters, through a large extent of country, and falls by a hundred mouths into the Euxine sea;

— et pare
Che guerra porta e non tributo al mare.*

Rodolph, during his residence in this castle, would not have given credit to a person endowed with the spirit of prophecy, who should have informed him, that, in little more than a century, a few small republics would drive his descendants from their hereditary dominions in Switzerland, and erect upon their ruins, and on the basis of equal liberty, a formidable confederacy, which would be courted by the most powerful sovereigns. Still less perhaps would he have believed, that he himself should possess the imperial throne; that his lineal descendants should rule over Germany, Hungary, Bohemia, Austria, Spain, Burgundy, the Low Countries, Milan, Naples, and Sicily, and extend their dominion and influence from the shores of the Euxine to the New World beyond the Atlantic.

LETTER XIV.—*Königsfelden.—Windisch.—Voyage down the Rhine.*

Having gratified our curiosity at the castle of Hapsburg†, that cradle of the House of Austria, which still confers a title on the present Emperor of Germany, we de-

* Tasso.

† There is also a castle of Hapsburg, situated near the lake of Lucern, which I visited in 1779. Some authors have erroneously asserted, that this was the castle from which the counts derived their titles. But Hergot has refuted this opinion; and unquestionably proved that honour to be due to the castle of Hapsburg which I have described in the preceding letter. See Hergot, Gen. Dipl. Augf. Domus Habsb.

scended into the plain of *Königsfelden*, to a convent of the same name, built by Elizabeth, on the spot where her husband the Emperor Albert was assassinated. Albert, as guardian to his nephew John of Hapsburg, had taken possession of his hereditary dominions in Switzerland, and refused, under various pretences, to deliver them up to him. Wearied with repeated and fruitless solicitation, John entered into a conspiracy against the Emperor, with Rhodolph de Warth, Ulric de Palme, Walther de Eschenbach, and Conrad de Tagerfeld.

The Emperor dined at Baden, in his way to Rheinfelden, a town in the circle of Suabia, where the Empress his consort had collected a considerable body of troops, for the purpose of invading the three cantons of Uri, Schweitz, and Underwalden, which had revolted against him. Contemporary historians, who have recorded the minutest circumstances in this whole transaction, relate, that Albert was in high spirits during the repast; and that, his nephew again entreating to be put into possession of his hereditary dominions, the Emperor, with an air of banter, placed a garland upon his head, adding, at the same time, "This will be more suitable to you for the present, than the cares of a troublesome government." This taunt so deeply affected the young prince, that he burst into tears, flung away the flowers, and could not be prevailed upon to sit down to table.

After dinner Albert continued his journey on horseback, accompanied by his son Leopold, the conspirators, and his usual attendants; and came near the town of Windisch, in the canton of Bern, to the Reufs, over which river passengers were usually ferried upon a raft. The conspirators first passed over, and were followed by Albert: as he was riding gently on, expecting Leopold and the remainder of his suite, he was suddenly beset by the assassins. One of them having seized his horse's bridle, John of Hapsburgh reproached him for his injustice in detaining his dominions, and struck him on the neck with his sword: Rhodolph de Warth wounded him in the side, and Ulric de Palme clove his head with a sabre. In this condition they left him expiring upon the ground.

This assassination was perpetrated the first of May 1308, in the open day, and in the sight of his son and the rest of his suite, who had not as yet passed the river, and who, though spectators of the murder, yet could not assist the Emperor. The field lies between the Aar and the Reufs, not far from the junction of those two rivers; and the very spot where he was massacred is marked by a convent, erected by his wife Elizabeth and his daughter Agnes; the place was called *Königsfelden*, or King's field; a name it retains to this day. The remains of the Emperor were buried in the convent of Witterling, from whence they were afterwards transported to Spire, and there interred.

The assassins escaped into the cantons of Uri, Schweitz, and Underwalden, expecting to find a sure asylum in a nation which Albert was preparing to invade. But the generous natives, detesting a crime of so atrocious a nature, although committed upon the person of their greatest and most formidable enemy, refused to protect the murderers. D'Eschenbach concealed himself in the disguise of a common labourer during thirty years, nor was his rank discovered till he confessed it upon his death-bed; De Palme, destitute of common necessities, died in extreme poverty; De Warth, tied to a horse's tail, like a common malefactor, dragged to the place of execution, was broken upon the wheel. John of Hapsburg, commonly known by the appellation of *parricide*, did not reap the expected benefits of the crime; for, by order of the Emperor Henry the Seventh, he retired into a monastery of Augustine friars, where he died in 1315.

The

The widow of Albert turned her whole thoughts towards revenging the death of her husband, and in this pursuit involved the innocent as well as the guilty; all who had the smallest connexion with the assassins, being sacrificed with undistinguished cruelty. Meanwhile the three cantons were, for a few years, left to the undisturbed enjoyment of their liberties, and to strengthen themselves against any future attack; and thus they innocently reaped the sole advantage which was derived from this assassination.

The convent or abbey of Konigsfelden comprized within its extensive precincts a nunnery of the order of St. Clare, and a monastery of monks of the order of Minorites, separated from each other by a wall. It was richly endowed by Elizabeth, her five sons, and her daughter Agnes, Queen of Hungary, who assumed the habit of a nun, and here passed the remainder of her days. At the Reformation the abbey was secularized, and its lands appropriated by government: part of the building became the residence of the bailif, part was converted into an hospital, and part was suffered to fall to ruin. Many of the cells formerly occupied by the nuns, still exist in their original state; and one, in particular, is distinguished as the habitation in which Queen Agnes lived and died.

The chapel still remains entire, but is no longer used for divine service. The glass windows are beautifully coloured, and painted with various histories of the Old Testament; with the portraits of Elizabeth and Agnes, of the Emperor Albert, and his sons.

On the walls are coarsely represented the figures of Leopold Duke of Austria, and the principal nobles who perished at the battle of Sempach. Elizabeth and Agnes, and several princes and princesses of the House of Austria, were buried in this chapel; but their bones were a few years ago removed to the abbey of St. Blaise, in the Black Forest, where they were deposited with great pomp, and magnificent sepulchres erected to their memory.

Near Konigsfelden is the small village of Windisch, standing at the conflux of the Aar and the Reufs, and supposed by antiquarians to occupy the site of *Vindonissa*, a Roman fortress mentioned by Tacitus. In traversing the place I did not observe the least signs of any antiquities; but various lapidary inscriptions, mile-stones, sepulchral urns, medals, coins, and gems, which have been found in great abundance, sufficiently prove that it must have been the station of a large Roman colony. The reader, who is inclined to reflect on the vicissitudes of human possessions, will recollect with pleasure the following quotation: "Within the antient walls of Vindonissa, the castle of Hapsburg, the abbey of Konigsfeld, and the town of Bruck, have successively arisen. The philosophic traveller may compare the monuments of Roman conquest, of feudal or Austrian tyranny, of monkish superstition, and of industrious freedom. If he be truly a philosopher, he will applaud the merit and happiness of his own time*."

Early the next morning we embarked on the Aar, which, though here a trifling stream, yet, being considerably swelled by the tribute of waters from the Reufs and the Limmat, soon becomes a considerable river. Its bank are agreeably enlivened with meadows and woods, and spotted occasionally with villages, castles, and ruins, hanging on the water's edge. Having made a small turn, it falls by a strait channel into the Rhine, vying in size and rapidity with the great river in which it loses its name: its waters, which are of a silvery hue, are for a long way distinguished from those of the Rhine; which, being transparent, and of a sea-green colour, seem to disdain the union.

The banks of the Rhine are far superior in wildness and beauty to those of the Aar, in many parts rising perpendicularly, yet feathered with wood; in others sloping in gentle declivities, richly bordered with vines, forest, and pastures; and exhibiting a continual succession of towns and villages. The rapid stream carried us above eighteen miles in three hours, and we landed at Lauffenburgh, where the Rhine forms a cataract, which, though greatly inferior to the fall of the same river near Schaffhausen, yet deserves to be visited by travellers for the beauties of the scenery. As I stood upon the crags of the northern shore, the principal objects were, a high bridge, partly open and partly covered, supported by three lofty stone piers; on the south a row of houses, with an old ruined castle on a summit, boldly overhanging the water; a perspective of woods and meadows under the arcades of the bridge; and the river dashing over its craggy bed, in a sloping cataract, until it is suddenly lost among the rocks which close the view.

About half a mile below this fall we re-embarked, and found the waters in many parts more agitated than those of the Limmat; particularly near Rheinfelden, where they rush with such increasing velocity, that they were troubled like the waves of the sea, and, beating against the boat, turned it obliquely by their violence. Here we were hurried along with such rapidity, that though I had a pencil in my hand, I had no time for observation, much less for description; I could only catch a general glance of the romantic scenery, as we passed under a picturesque bridge of several arches, suspended high above the surface of the river, and joined to a steep rock, on which towered some majestic ruins. In many parts, and for a considerable way, our vessel passed within a few inches of the shelving rocks, and was only prevented from striking them by the dexterity of the pilot.

As we approached Basle, the stream became less rapid; and we disembarked, highly delighted with our expedition.

LETTER XV.—*The Town of Basle.—Erasmus.—Library.—Holbein.*

I ARRIVED at Basle or Basel, I supposed, about twelve at noon; but was much surprized to find, that all the clocks* actually struck one: and, on inquiry, I was informed, that they constantly go an hour faster than the real time. Different reasons have been assigned for this singularity: some assert, that it was first practised during the council of Basle, in order to assemble, at an earlier hour, the cardinals and bishops, who, being lazy and indolent, always arrived late. Others maintain, that a conspiracy being formed to assassinate the magistrates at midnight, one of the burgomasters, who had notice of the design, advanced the town-clock an hour; by which means the conspirators, imagining they had missed the appointed time, retired; and that the clocks are still kept in the same advanced state, as a perpetual memorial of this happy deliverance. But there is a third reason given for this strange custom, which seems the most probable. It is well known that the choirs of cathedrals are constructed towards the east: that of Basle declines somewhat from this direction; and the sun-dial, which is placed upon the outside of the choir, and by which the town-clock is always regulated, partakes of this declination; a circumstance which, according to the celebrated Bernoulli, occasions a variation from the true time of about five and forty minutes.

* The clocks of Basle, as well as the government, have undergone a revolutionary change in the new order of things. The motion for altering the clocks according to the real time was made by M. de Mechel.

The inhabitants of Basle are still so strongly attached to this whimsical custom, that, although it has been often proposed in the sovereign council to regulate their clocks properly, yet the motion has been invariably rejected; and the people would suspect that their liberties were invaded, if their clocks agreed with those of the rest of Europe. A few years since, several leading men of the town determined to alter the hand of the sun-dial half a minute a day, until the shadow should imperceptibly point to the true hour. This expedient was accordingly practised, and the clock had already lost near three quarters of an hour, when an accident discovered the design: the magistrates were accordingly compelled to place the hand of the sun-dial in its former position, and to regulate the hours as usual. Indeed, long-established customs, however indifferent or ridiculous, are apt to make so strong an impression upon vulgar minds, as to become sometimes dangerous, and always difficult to be abolished; especially among a people, like those of this country, who are averse to any change, even in the minutest articles. I need not remind you, how long it was before the English could be persuaded to reckon their years according to the general mode of computation in Europe.

Basle is beautifully situated upon the banks of the Rhine, near the point where that river, which is here broad, deep, and rapid, after flowing for some way from east to west, turns suddenly to the north. It consists of two towns joined together by a long bridge; the Large Town lies on the side of Switzerland, and the Small Town on the opposite banks of the river. It stands very favourably for commerce; an advantage which the inhabitants have by no means neglected; for they have established a great variety of manufactures, particularly of ribands and cottons; and an extensive trade is carried on by the principal merchants.

The cathedral is an elegant gothic building, but strangely disfigured by a daubing of rose-coloured paint. It contains the ashes of Gertrude Anne Countess of Hohenburg, wife of the Emperor Rodolph I. who died at Vienna, in 1281, and her body was conveyed to Basle. Her two christian names gave rise to much confusion, and led many historians to conclude that Gertrude and Anne were two different personages, and successive wives of that Emperor; while others ridiculously supposed that both were married to him at the same time: nor were these erroneous opinions confuted, and the controversy finally settled, till Hergot, the laborious genealogist* of the House of Austria, proved, from the most unquestionable authorities of ancient diplomes, the identity of this divided personage; and that the mistake arose from her being uniformly styled Gertrude before her coronation, and Anne after the performance of that ceremony. She bore to her husband fourteen children; and though the mother of so large a family, yet such was her extreme sensibility, that the grief which she suffered at the departure of her daughter Clementina to Naples, on her marriage with Charles Martel, hurried her to her grave.

In the same church are deposited, under a marble tomb, the venerable remains of the great Erasmus. That distinguished writer joined to superior learning, and a peculiar elegance of style, the keenest wit, which he pointed, not only against the vices and ignorance of the monks, but the general corruptions and disorders of the Roman church. He was indeed the forerunner of Luther, in his first attacks upon the Catholics, respecting the sale of indulgences: but afterwards, when the controversy appeared more serious, and an open breach with the church of Rome seemed inevitable, he condemned the proceedings of that bold reformer. He considered them, indeed, as altogether unwarrantable; and, although he had himself censured and exposed the corruptions that infected the Catholic religion; yet he zealously inculcated submissive

* See Hergottii Geneal. Diplom. Dom. Aust. vol. i. p. 125.

obedience to the decrees of what he called the "universal church." Agreeably to these sentiments he advised the protestants to endeavour at obtaining, by mild and patient measures, what they might indiscreetly lose by a warmer and more violent opposition.

Such temperate counsels were ill suited to the daring and impetuous spirit of Luther. Accordingly, while Erasmus was acting the part of a mediator, and endeavouring to moderate and allay the flame on each side, he drew upon himself the displeasure of both parties: in allusion to this temporising conduct, one of his adversaries applied to him, not unaptly, that line in Virgil,

Terras inter calumque volabat.

The impartial truth seems to be, that he was by no means disposed to become a martyr in the cause: the natural timidity of his temper, a too great deference to persons of superior rank and power, and perhaps the fear of losing his pensions, induced him to take a decided part against the reformers, and condemn their separation from the church of Rome.

But it would be uncandid to impute his conduct wholly to selfish considerations: something may fairly be ascribed to the powerful impressions of early prejudices; and something to that rooted love of peace and studious tranquillity, which seems to have been the spring of all his actions. But, whatever imperfections may be discovered in some particular parts of his character, his memory must be revered by every friend of genius, learning, and moderation. Liveliness of imagination, depth and variety of erudition, together with great sagacity of judgement, were in him eminently united. He infused a spirit of elegance even into theological controversies; and contributed to disencumber literature from that scholastic jargon with which it was disgraced. Erasmus reflected much honour upon this town, by choosing it as the favourite place of his residence, and publishing from hence the greatest part of his valuable works. In the public library are preserved, with great veneration, his hanger and seal, several of his letters, and his last testament, written with his own hand.

The university of Basle was formerly eminent in the literary history of Europe. Who, in the least conversant in letters, is unacquainted with the celebrated names of Oecolampadius, Amerbach, the three Baubins, Grynæus, Buxtorf, Wettstein, Iselin, the Bernoullis, and Euler. If it has fallen from its pristine state of renown, its decline must be principally imputed to the casual mode of electing the professors; but it still boasts several members who do honour to their native town by their learning and abilities.

The public library contains a small collection of books, remarkable for several rare and valuable editions; particularly of those printed in the fifteenth century. The most curious manuscripts are numerous letters of the first reformers, and of other learned men in the fifteenth, sixteenth, and seventeenth centuries; and an account of the proceedings at the council of Basle. The minutes of that council were taken by John of Segovia; and are supposed to be the same which are preserved either in the library, or in the archives of the town: the former is written on paper, the latter on parchment. A question has arisen which of these is the original. Some conclude in favour of that in the archives, on account of the many false readings and mistakes in the other, which are plainly the faults of the copyist. Others give the preference to that in the library, because it is written in different hands, and with different ink, which seem to imply that it was noted down at various intervals, according as the acts of the council were passed; whereas that in the archives, being penned on parchment, in the same hand

and with the same ink, was probably copied from the original minutes; for who, it is urged, would take minutes on parchment? A third opinion, still more probable, is, that neither of these is the original. Several passages are wanting in both; which omission may have proceeded from the transcriber not being able to read every part of the original. It is probable that John of Segovia took away the minutes, and deposited them at Rome; and that one of these manuscripts was the copy transcribed by order of the council; of these, the manuscript on parchment appears to be the most authentic.

In a suite of rooms belonging to this library, is a cabinet of petrifications, collected in the canton of Basle by the Rev. Mr. Annoni; some ancient medals and gems; a few antiquities found at August; a large number of prints; and some fine drawings and paintings, consisting chiefly of originals by Holbein, who was a native of this town. These pictures are, most of them, in the highest preservation: the connoisseur can here trace all the different manners of Holbein, and compare the productions of his youth with those of his maturer age. A few are preserved, which he painted before he had reached his sixteenth year; and one, extremely curious, which he drew upon a sign for a writing-master. The portraits of himself, his wife, and children in the same group, are much admired for nature and simplicity of expression. The most valuable of these paintings is an altar-piece, in eight compartments, which represents the passion of our Saviour: a performance, in which this admirable artist has carried to the highest perfection that singular brilliancy of colouring so peculiar to his best compositions. I was much struck with a profile of his friend and patron Erasmus, writing his commentary upon St. Matthew; there is a spirit and animation in the countenance, finely expressive of his sagacious and penetrating talents.

Among the works of Holbein, that discover the liveliness of his fancy, must be mentioned the sketches he drew on the margin of the Eulogium of Folly by Erasmus, which he received as a present from the author. This curious volume is preserved in the library, and has been lately published by Mr. Haas, in French, Latin, and German, with fac-similes of the original designs, engraved on wood.

The dance of death, in the church-yard of the predicants of the suburbs of St. John, is frequently shewn to strangers as being of Holbein's pencil. It is painted in oil-colours upon a wall which encloses the burial-ground: but, as it has several times been retouched, no traces are discoverable of that great master's hand. In fact, the Hon. Horace Walpole, and other unquestionable judges, have proved, that this performance was painted before Holbein was born; and that he was not employed even in retouching it. It is probable however, that, from this ancient painting, he took the first hint towards composing his famous drawings on the dance of death. In treating that subject, he has displayed such richness of imagination, and discovered so much judgement in the disposition, and so much spirit in the execution of the figures, that Rubens studied them with particular attention, and took drawings from them.

The originals of Holbein's dance of death were purchased by M. Fleischman of Strasbourg, at the sale of the famous collection of Crozat, at Paris; of which Mariette has published a catalogue. They are now in the possession of prince Gallitzin, minister from the Empress of Russia to the court of Vienna. They consist of forty-four small drawings: the outlines are sketched with a pen, and they are slightly shaded with Indian ink. I had frequent opportunities of seeing them, during my continuance at Vienna, and particularly admired the variety of attitudes and characters in which death is represented.

Prints have been taken from some of these drawings by Hollar, which are very scarce. Mr. de Mechel, a celebrated artist of this place, has already engraved them after the original.

original designs; a work which cannot fail of being highly acceptable to the admirers of the fine arts; he has added four engravings, which are not in the prince's collection, and which are taken from the prints of Hollar. He ingeniously conjectures, from the dresses and characters of several of the figures in the dance of death, that the author sketched them while he was in England. They were, probably, in the Arundelian collection when Hollar engraved them.

Mr. de Mechel has finished also a set of prints from the fine paintings of the Dusseldorf gallery, and likewise engravings of the famous Hedlinger's medals. This able artist has a small but well chosen collection of paintings; and his magazine of prints (in which article he carries on a very considerable trade) is perhaps one of the largest and most complete in Europe. I am acquainted with no person to whom the curious traveller can address himself with greater advantage than to Mr. de Mechel, nor from whom he can receive more useful information. To a particular knowledge of the physical beauties of Switzerland, he joins a thorough acquaintance with the different governments, customs, and manners of the several cantons. As he is intimately connected with the principal men of learning in this country, his letters of recommendation are the most desirable, and the most beneficial, that can be procured, and he enjoys as much satisfaction in conferring, as can be received by accepting, his good offices. He indeed possesses a great fund of good humour, an amiable frankness of disposition, and a certain originality of manner, which, together with his other valuable qualities, recommend him as a no less pleasing than useful acquaintance.

I visited also the small but pleasing collection of pictures, mostly of the Flemish and Dutch schools, belonging to M. Faesch, member of the Great Council. In the courtyard before his house is a wooden statue of Rodolph I. sitting on a throne, and clothed with the imperial insignia: underneath I observed the date of 1273, the æra of his coronation. The rudeness of the sculpture renders it probable that it is an original of that great Emperor, who was besieging Basle when he received the unexpected news of his election. The gates were immediately thrown open; and he was instantly admitted as a friend into that town, which had shut its gates against him as their enemy. On this occasion he resided a short time at Basle, and, as tradition relates, in this very house.

I am, &c.

LETTER XVI.—*Government of Basle.*

THE bishops of Basle once possessed the sovereignty over the city and canton; but were gradually deprived of their prerogatives; and, in 1501, finally quitted this town, when the canton joined the Helvetic confederacy. They retired at first to Friburgh in Brisgau; and afterwards, establishing their residence at Porentru, entirely lost the trifling authority and inconsiderable prerogatives which remained to them. Upon the introduction of the reformation in 1525, the constitution was in some measure changed; and the power of the aristocracy limited.

It would seem in theory scarcely possible to divide the aristocratical and democratical commonwealths into so many different species as exist in Switzerland: for, in this country, every republic has its peculiar modification; and there is none more singular than that of Basle. To view the general outlines of the constitution, it has the appearance of an absolute aristocracy*; but, upon considering it in detail, it will be found to incline towards

* An aristocracy (strictly speaking) means that form of government, which places the supreme power in the nobles, exclusively of the people; but here I mean by it, the confining of the sovereign authority to

towards a democracy. The supreme legislative power resides in the Great and Little Councils, consisting of about three hundred members; and the authority of these two councils combined is without controul. They enact laws, declare war and peace, contract alliances, and impose taxes: they elect the several magistrates, appoint their own members, nominate to all employments, and confer the right of burghership. The general administration of government is committed by the Great Council to the Senate, or Little Council; that is, to a part of its own body. This Senate, composed of sixty members, together with the four chiefs of the republic, two burgomasters, and two great tribunes, is divided into two bodies, which act by rotation. The acting division continues in office one year, decides finally in all criminal causes, superintends the police, and exercises several other powers subordinate to the Sovereign Council. The collective body of citizens assembles only once a year; when the magistrates publicly take an oath to maintain the constitution, and preserve the liberties and immunities of the people inviolate. The reciprocal oath of obedience to the laws is administered to the citizens in their respective tribes.

But, notwithstanding the boundless prerogatives of the Great Council, yet the meanest citizen is legally capable of being admitted into that body, and by the singular method of election may possibly be chosen. For the vacancies in the two councils are supplied from all ranks of citizens, one class only excepted, the members of the university. These citizens are divided into eighteen tribes, called in German *Zuenfte*, fifteen of which belong to the larger town, and three to the smaller; each of the first-mentioned fifteen tribes returns four members to the senate, and each of the whole eighteen sends twelve to the Great Council. Formerly these elections were determined by a plurality of voices; but as by these means the richest person was always certain of being chosen, a *ternaire* was established in 1718, that is, three candidates were nominated, and from these the successor was appointed * by lot.

Although this mode of election in some measure put a stop to corruption, yet it was not sufficient to counteract entirely the influence of the wealthy; and as the poorer citizens could seldom succeed to the most honourable or lucrative employments, they procured an act to be passed in 1740, changing the *ternaire* into a *senaire*; by which six candidates, instead of three, were put in nomination, and drew lots for the charge. Six tickets, containing the names of the respective candidates, and separately placed in silver eggs, are inserted into one bag; and the same number of tickets, five of which are blanks, and one is marked with the vacant employment, are placed in another. The reigning burgomaster and the great tribune, appointed to be the drawers of this *official* lottery, both at the same instant take a ticket from each bag, and the candidate whose name comes out at the same time with the ticket on which the employment is written, obtains the post.

It would be too tedious, and indeed too uninteresting a detail, to enter into a minute account of the forms and circumstances requisite to be observed in selecting the several

to a certain limited number of persons, without considering whether they are patricians or plebeians, nobles or commons; for at Basle every citizen who is noble, and who chooses to retain his title of nobility, is incapable of being elected a member of the Sovereign Council.

* The fifteen tribes in the great town are called *Zuenfte*, and the three in the small town *Gesellschaften*, or companies. It may also be remarked, that the citizens of the small town enjoy more advantages than those of the great town; inasmuch as the former may be appointed to public employments either in the tribes or in the companies; whereas a citizen of the great town cannot be admitted into the companies, unless he resides in the small town.

candidates. To give, however, some general idea of this matter: Upon a vacancy in the Great Council, for instance, the six candidates must be taken from the citizens of that tribe, to which the person who occasioned the vacancy belonged, and be nominated by such of the members of the Great and Little Councils as are of the same tribe. The candidates for the senate and for the tribunes or chiefs of each tribe, called in German *meister*, are appointed by the Great Council. But there is one case in which the *senaire* is not practised; for, upon the death of a burgomaster, his colleague, who is the great tribune, succeeds of course.

It should seem that many inconveniences must flow from this absurd method of supplying vacant posts in the government, as they are left entirely to the capricious disposal of fortune. In fact, it has not unfrequently happened that a candidate, whose knowledge and abilities rendered him capable of being serviceable to the state, has never obtained the successful ticket; while chance has bestowed it upon another by no means qualified to fulfil the duties of the employment. However, notwithstanding the ill effects resulting from this casual mode of election, the management of public affairs is in general well conducted; and there are few instances of civil justice unwisely administered, or of innocence sacrificed to wealth or power.

But the counsellors of state and magistrates are not the only persons chosen by lot; even the professors in the university are elected in the same manner. The three candidates (for in this instance the *ternaire* is still in use) must be nominated from those who have taken the degree of doctor. Hence a candidate not unfrequently offers himself for the professorship of a science which he has never made the peculiar object of his studies, if the chair of that particular branch of literature in which he excels is already occupied; for, under these circumstances, the respective unqualified professors change places with each other. Thus (to mention an instance from a family well known) John Bernoulli, the famous mathematical professor in this university, who died in 1748, left three sons, Nicholas, Daniel, and John, all justly celebrated for their skill in that science, in which their father and uncle so eminently excelled. Nicholas died at St. Petersburg, member of the Imperial Academy of Sciences; and Daniel, having followed his brother into Russia, returned to Basle on obtaining the professorship of anatomy, which he afterwards had an opportunity of happily exchanging for that of natural philosophy; he died in 1782*. A similar circumstance happened to the third son John; after being several times an unsuccessful candidate in the lottery of professorships, chance at length

* The following curious epitaph on a lawyer, interred in the cathedral, complains that the deceased, notwithstanding his advanced age of 84, which had afforded many opportunities of being nominated candidate for various offices of state, had been continually excluded by fortune:

S: E: S:

Locum quo Sepeliatur
de suo acquisivit

JOH: GEORG. SCHWEIGHAUSER

J. U. L. Ducentum Vir

Fori judicii et Appellationis

ultra XL Annos assiduus Assessor

muneribus autem Academicis

et publicis Officiis

Sorte constanter exclusus

vixit tamen et vivere desit

ut Virum Honestum decet

natus Mense Januario 1695.

Obiit Die VII. Mensis Junii 1779.

H. M. H. P.

conferred on him the chair of *rhetoric*, for which he was wholly unfit ; but upon his father's death he changed with M. Rumspeck, to whom fortune had assigned the professorship of mathematics.

The sumptuary laws are very strict at Basle. The use of coaches in the town is not indeed prohibited, as at Zurich ; but what is more singular, no citizen or inhabitant is allowed to have a servant behind his carriage. Laws of this kind may be carried, in some instances, to a scrupulous and even ridiculous minuteness ; upon the whole, however, they are excellent regulations, and not only useful but necessary in a small republic. They have certainly operated with great advantage in this town ; for although it contains several families who are considerably rich, yet a happy simplicity of manners is still so predominant, that you would smile if I were to particularise those articles which pass under the opprobrious denomination of *luxury*.

The lower ranks of citizens are in general so strongly prejudiced in favour of their own country, as to seem convinced that true felicity is only to be found at Basle ; and indeed that class of people are in no part of the world more happy. Every person boasts that he is free, and is so in reality ; and as the citizens not only possess very considerable privileges, but each individual may also indulge the hope of being one day chosen into the Sovereign Council ; he enjoys a certain degree of respect and consideration extremely flattering to his self-importance. In fact, several of the magistrates exercise the meaner trades ; and the present treasurer, whose name is Muench, is a baker : he is indeed a person of distinguished knowledge and merit, and has been twice appointed one of the candidates for the office of great tribune ; which, had fortune favoured him, would have been followed on the next vacancy by his succession to the office of burgomaster. In general the burghers' sons receive an excellent education : they always learn the Latin, and not unfrequently the Greek tongue ; and it is by no means unusual, even for the lower sort of tradesmen, to employ their leisure hours in the perusal of Horace, Virgil, and Plutarch.

The conduct of magistrates is nowhere more freely, nor more severely, criticised than at Basle. The people may sometimes, no doubt, extend this privilege beyond its proper limits ; but they can never be totally restrained from exercising it, without striking at the vitals of their liberty : it is essential to their existence, and no free government can long survive its extinction.

Basle is the largest, and seems formerly to have been one of the most populous towns in Switzerland : its extent is capable of containing above a hundred thousand inhabitants ; whereas it can scarcely number more than fourteen thousand. Many particular causes may have concurred to occasion this remarkable decrease ; but I will mention only one or two to which it may be attributed.

It is proved, from undoubted calculations, that in all great cities the number of burials exceeds that of births ; consequently, unless this unequal proportion is compensated by a constant accession of new inhabitants, in process of time every great town must necessarily become depopulated. Now the citizens of Basle are so jealous of the burghership, and pride themselves so much upon the privileges which accompany it, that they seldom deign to confer it upon foreigners : a supply therefore to balance that gradual waste of people I have mentioned, can never be derived from an influx of strangers, who are not permitted to carry on commerce, or to follow any trade. A few years ago some of the magistrates, sensible of the impolicy of this prohibition, procured a law, by which the freedom of the town and the right of burghership was allowed to be conferred

ferred upon strangers ; but it was clogged with so many restrictions, as by no means to answer the purpose for which it was intended. Every principle indeed of private interest and ambition concurred to prevent its efficacy ; and no wonder, for bodies of men are seldom actuated by so generous a spirit as to sacrifice their personal and immediate advantages to the future welfare and prosperity of their country *. I am, &c.

LETTER XVII.—*Combat at the Hospital of St. James, between the Forces of Louis Dauphin of France, and a Corps of Swiss Troops.—Ruins of Augst.—Mulhausen.*

CURIOSITY led me, during my continuance at Basle, to visit the hospital and burying-ground of St. James, not far from the town, and near the small river Birs, celebrated for a desperate combat in 1444, between the Swiss and the Dauphin of France, afterwards Louis XI. Never was Swiss valour and intrepidity so signally displayed, as by a few battalions of their troops on that memorable day.

This famous battle was fought in consequence of some disputes which arose between the canton of Zurich and those of Schweitz and Glarus. Zurich refusing to abide by the mediation of the five neutral cantons, who had decided in favour of Schweitz and Glarus, a civil war ensued ; upon which occasion Zurich formed an alliance with the Emperor Frederic the Third. The seven antient cantons, in order to obtain a renunciation of this alliance, which they justly considered as an infringement of their league, laid siege to that town. Frederic, unable to send a sufficient body of troops to its relief, applied for additional succours to Charles the Seventh, King of France ; who, as well with a view of dissolving the council of Basle as for the particular purpose required, ordered a considerable army to march, under the command of his son Louis. Accordingly the Dauphin entered with his forces into Alsace, and after laying waste and harassing the adjacent provinces, appeared before Basle. Upon this occasion, a detachment of fifteen hundred Swiss from the army of the confederates (at that time employed in besieging Farnspurg) were ordered to throw themselves into the town of Basle, which was but slightly garrisoned.

This handful of men advanced without interruption to the plain of Brattelen, where they charged, with such determined and well-conducted valour, eight thousand of the enemy's cavalry, as to drive them back to Muttentz, at which place the repulsed were joined by another corps ; but, notwithstanding this reinforcement, the Swiss renewing

* Basle was the first canton which separated from the old Helvetic confederacy, and adopted the new constitution fabricated in France. Its situation near the frontiers exposed it to the intrigues of the French agents, and without foreign support rendered it incapable of resistance. The peasants of the canton were likewise dissatisfied with the monopoly of power and commerce vested in the burghers of the town ; encouraged by the French, and excited by their own turbulent demagogues, they peremptorily required emancipation and independence. The magistrates could only lament in secret the progress of disaffection, and were compelled to submit without a struggle ; the French having over-run the bishopric of Basle, and annexed it to their own dominions, claimed the episcopal palace as succeeding to the rights of the bishop, and under that pretence introduced a corps of troops into the town.

The progress of the revolution in this canton was almost instantaneous : the peasants rose in different districts, demolished the castles of the bailiffs, planted on the 18th of January, at Liechstatt, the first tree of liberty, and sent deputies to Basle with their declaration of rights, which they styled Magna Charta. The magistrates acceded to their demands, admitted 600 militia into the town, and recalled their deputies from Arau. On the 24th the tree of liberty was planted at Basle, and on the 5th of February the old magistrates resigned their authority, and sixty delegates, appointed by the people, were invested with a provisional government, until the new constitution should be consolidated. Thus the magistrates of Basle were first compelled to set the fatal example of a separation from the Helvetic Union ; an example which was soon followed by the other parts of the confederacy.

the assault with fresh intrepidity, forced them to repass the river Birs, where the main body of the army was chiefly drawn up. Such was the firmness and solidity of the Swiss in these several rencounters, that, to use the expression of an old French chronicle, when the cavalry charged "they could make no more impression than if they had attacked a rock, or an impenetrable wall." The Swiss, encouraged by this wonderful success, and exasperated with the most spirited indignation against the invaders of their country, disregarded the remonstrances of their officers, and rashly attempted to force their passage over a bridge which was guarded by a large body of the enemy; but this effort of inconsiderate valour proving ineffectual, these gallant soldiers, throwing themselves into the river, gained the opposite shore, in the face of a battery of cannon that was playing against them.

What could the desperate courage of so small a number avail against an army of thirty thousand men advantageously posted in an open plain? They had no alternative but to throw down their arms, or gloriously expire. They bravely preferred death: five hundred took possession of a small island near the bridge, and, after resolutely defending themselves to the last extremity, were cut to pieces. A like number forced their way through the ranks of the enemy, and marched towards Basle; when they were opposed by a large body of horse, posted to prevent the inhabitants of the town from falling to the relief of their countrymen. Being now surrounded on all sides, they threw themselves into the hospital of St. James, and, lining the walls of the burying-ground, resisted for some time the united assaults of the whole French army. At length the hospital being set on fire, and the cannon having battered down the walls of the burying-ground, they fought no longer in hopes of victory; but still resolving to sell their lives as dear as possible, they continued to defend themselves to the last gasp.

Æneas Sylvius (afterwards Pope Pius II.) relates, among other actions of singular valour exerted by this heroic troop, a particular instance which I cannot forbear mentioning. Four French soldiers assaulted a single Swiss, and having killed and stripped him, proceeded to insult the corpse: one of his companions, incensed at this brutal action, seized a battle-axe, rushed upon the four, slew two of them, and drove the others to flight; then flinging the dead body of his friend upon his shoulders, carried it to a place of security; and returning to the attack, fell by the hand of the enemy.

Of the whole number but sixteen escaped from the field of battle; and these, agreeably to the old Spartan discipline, were branded with infamy, for not having sacrificed their lives in defence of their country. Among those who were desperately wounded, and left upon the field, only thirty-two were found alive. The names of many of these glorious combatants were registered, and still remain upon record.

It is not easy to ascertain the number of forces on both sides in this ever-memorable engagement. As far as we can judge, by comparing the several relations of the French and German historians, the army of the Dauphin consisted of at least thirty thousand. Charles and his son Louis, in their Letters to the German princes on this occasion, assert, that three thousand Swiss fell on the field of battle; and perhaps that account is not much exaggerated. With respect to the slain on the side of the Dauphin, the amount is still more uncertain: his loss, however, must have been very considerable, for he remained three days upon the field of battle; and, the better to conceal the number of the killed, ordered the dead bodies to be secretly interred in different parts of the neighbourhood. He was effectually prevented from prosecuting his designs upon Switzerland, and compelled to retire with his shattered army into Alsace. Louis himself, indeed, declared, that such another victory would ruin his army; and generously confessed, that he derived from it no other advantage, than to know and esteem the valour of the Swiss. Accordingly, this combat may be considered as forming a re-

markable

markable æra in the history of the Swiss: for it gave rise to their treaty with Charles the Seventh; the first alliance which they contracted with France.

The war, however, between the House of Austria and Zurich on one side, and the seven cantons on the other, continued until the year 1446, when a peace was concluded by the mediation and decision of certain arbiters: Zurich renounced its connection with the House of Austria; and the Helvetic Confederacy was again solemnly renewed and confirmed between the eight cantons. Upon this occasion two very important articles in the public law of Switzerland were finally settled: first, that all disputes between any particular cantons should be decided by the mediation of the neutral cantons; and if either of the two contending parties should decline to acquiesce under their judgment, the neutral cantons are empowered to have recourse to arms, in order to compel the recusant to abide by their determination; secondly, notwithstanding the right which either of the cantons might have reserved to itself, of contracting alliances with foreign powers, yet the other confederates are to judge whether such alliance is contradictory to, or incompatible with, the articles of the general union; and if it should appear to be so, it is declared null and void.

The Swiss still talk of this famous action with the warmest enthusiasm. Accordingly, the inhabitants of Basle form parties every year, to an inn situated near the hospital and burying ground, in order to commemorate, in a red wine produced from some vineyards planted on the field of battle, the heroic deeds of their brave countrymen, who so gloriously sacrificed their lives. This wine, which they call the "*Blood of the Swiss*," is highly prized by the Basileans, though it has little to recommend it in point of flavour; nevertheless, I am much mistaken if that line of Horace,

Non missura cutem nisi plena cruoris.

was more applicable to the teasing poet he mentions, than it is to those jovial patriotic parties, at the anniversary computations of the "*Blood of the Swiss*."

Near Basle are the ruins of *Augusta Rauricorum*, formerly a large town under the dominion of the Romans, now a small village in the canton of Basle, close to the Rhine. Its ancient remains are very inconsiderable, consisting of a few columns of marble, still standing, and some scattered fragments of pillars, together with a semicircular range of walls upon a rising ground, the greater part of which has fallen, and is almost overgrown with under-wood. From the present appearance of the ruins I should hardly have conjectured that they once composed part of a theatre, capable of containing above twelve thousand spectators. But the celebrated Schæfflin has given, in his *Ayatia Illustrata*, a particular description of this theatre, and of the temple, to which the marble columns formerly belonged. I noticed also the remains of some small aqueducts, which conveyed water to the town from the distance of above twelve miles; but none of these ancient relics are sufficiently remarkable to merit the trouble of a particular visit.

The peasants, in turning up the ground, frequently find medals of the Roman Emperors, from Augustus to Constantine; and are become, by experience, able to distinguish, with some degree of precision, those that are rare from the common coins. I purchased of a labourer two medals which he had just found; a Trajan and an Albinus; and though the former was by far the most perfect, yet he exacted three times as much for the latter, because he had never seen it, he said, before.

From Basle I made an excursion to Mulhausen, a town in alliance with the Swiss cantons; which, though situated at the distance of several miles from the frontiers of Switzerland, and entirely enclosed within the dominions of France, is yet considered

and respected as a part of the Helvetic Confederacy ; and entitled to all the privileges enjoyed by that body.

Mulhausen stands in Sundgau, a district of Alsace, about fifteen miles from Basle ; in a fertile plain, at the bottom of a ridge of hills, and at small distance from the Vosges. The walls of the town enclose a circumference of not more than two miles, and its whole territory is comprised within a precinct of eight miles.

This little republic maintained its privileges, which had been granted by the Emperors during the times of feudal tyranny, by contracting an alliance, at different intervals, with Basle, Strasburgh, and the towns of Alsace and Suabia ; and afterwards, in the middle of the fifteenth century, with Bern, Friburgh, and Soleure. At length, in 1515, it was received into the Helvetic Confederacy ; which league has preserved its liberty and independence from the encroachments of the empire, on one hand, and, on the other, from the attacks of France. The inhabitants are of the reformed religion. The town contains about eight hundred houses, and six thousand souls, and there are two thousand subjects in the villages within its little territory. Mulhausen owes its present flourishing state to its manufactures, which consist principally of printed linen and cottons.

The government is aristo-democratical. The supreme power resides in the Great and Little Councils, consisting both together of seventy-eight persons, and drawn from the burghers, whose number amounts to seven hundred, distributed into six tribes.

Mr. Köehlin's commercial school deserves to be mentioned. It is a private institution for about thirty scholars, who are instructed in the German, French, and Latin languages ; in fencing, dancing, and all polite accomplishments ; and more particularly in accounts and book-keeping. The expence, including an uniform, amounts to £50 per annum. The plan is very judicious, and the whole appeared to be well conducted*.

LETTER XVIII.—*Bishopric of Basle.—Porrentru.—Abbey of Bellelay.—Arlesheim.—Delmont.—Valley of Munster.—Pierre Pertuis.—Valley of St. Imier.*

ALTHOUGH great part of the dominions subject to the Bishop of Basle, or, as he is called by the Protestants, the Prince of Porrentru, is not comprised within the limits of Switzerland ; yet as, till lately, he was in alliance with the Catholic cantons, and as many of his subjects, even in those districts which lie within the German empire, are comburghers with Bern, and under the protection of that republic, his territory is usually included in all the topographical accounts of Switzerland. It merits also the notice of the traveller for its romantic scenes, of the mineralogist for the variety of its petrifications and fossils, and of the politician for the peculiarity of its government, and the numerous and complicated immunities of the people.

Having made various excursions into this country, I shall lay before you a general account of its political state, and a particular description of those parts which I had an opportunity of visiting.

The bishopric of Basle may be classed under two general divisions : the first lies to the south of Pierre Pertuis, and forms a part of Switzerland ; the second, to the north of the same boundary, includes that district situated within the German empire.

* Mulhausen is no longer an ally of the Helvetic Body. In 1798 it surrendered to the French, after a blockade of two years, and was incorporated with the French Republic.

The sovereign is chosen by the chapter of eighteen canons, resident at Arlesheim, and confirmed by the Pope. He is prince of the German empire, and does homage to the Emperor for that part of his territory which lies in the circle of the Upper Rhine. He was always considered as an ally of the Swiss, by his union with the Catholic cantons, first formed in 1579, and renewed at different intervals, particularly in 1671 and 1697; and, by being included in the treaty which those cantons contracted with France in 1715. But as he was not comprised among the allies of the Swiss, in the league between the thirteen cantons and Louis the Sixteenth in 1777, he can at present scarcely be deemed a member of the Helvetic Confederacy.

The first particular alliance with France was concluded in 1739, between the Bishop and Louis the Fifteenth, and was renewed in 1780. By virtue of this treaty the Bishop has troops in the French service; and his subjects enjoy all the privileges which are granted to the natives of the thirteen cantons.

In case of a rupture between France and the empire, he is bound to remain neuter. But this neutrality did not in 1675 prevent the French troops from being quartered in his dominions, as forming part of the empire; and they were only removed at the intercession of the Catholic cantons. If a misunderstanding should arise between France and the Emperor, the Bishop's situation would be extremely embarrassing; as his doubtful connection with the Swiss would scarcely preserve his territory from being invaded by one of those two powers.

The form of government is limited sovereignty: the Bishop being bound, on all important occasions to consult his chapter; and his prerogative being confined by the great immunities enjoyed by his subjects in general, and particularly by those of the Reformed communion. He nominates to all employments, both civil and military, and appoints the bailiffs or governors; criminal justice is administered in his name, and he has the power of pardoning. In civil proceedings, he receives an appeal from the inferior courts; but in his German dominions, when the cause exceeds the value of a stipulated sum, it may be carried to the chambers of Wetzlar or Vienna.

The subjects of the bishop are partly Protestants and partly Catholics. The Protestants, of whom a more particular account will be given, inhabit the greater part of the valley of Munster, and the whole district of the south of Pierre Pertuis, and are about 15,000; the Catholics amount to 35,000.

The French and German languages being both spoken in the bishop's dominions, several places have two names, that scarcely resemble each other; namely, *Munster* and *Moitier*, *Dachfeld* and *Tavannes*, *Delmont* and *Delsberg*, *Corrandelin* and *Rennendorf*, *Elay* and *Seebhof*.

Porentru, capital of the bishop's dominions, and his principal residence, is situated in the bailliage of Elsgau, about three miles from the frontiers of France. It is a small but neat town; and its position, in an oval plain, surrounded by well-wooded hills, and watered by a serpentine rivulet, is exceedingly pleasant. The episcopal palace, which has been lately repaired and augmented, stands on an eminence overlooking the town, and the environs fertile in corn and pasture. One of the towers, built of stone, and said to be of Roman workmanship, still remains a monument of its antiquity.

The highways, which lead from all quarters to Porentru, and have been formed at a considerable expence, do honour to the sovereigns of this country. The road to Bellelay and Bienne is a magnificent causeway; is carried upon hanging terraces; through "twilight groves," and along continued ascents and declivities. I passed it by moonlight; and the reflection of the rays quivering through the thick foliage was inconceivably beautiful.

Bellelay, which I visited in my journey from Bienne to Porentru, is a rich abbey of Benedictines, about twenty miles from the capital, in a solitary but not unpleasant situation, surrounded by mountains, and sheltered by forests. This abbey is not merely confined to religious purposes; the late abbot, Nicholas de Luce, having instituted a military academy for the young nobility and gentry. For this purpose he erected a large building near the abbey, and provided suitable masters and professors. When I was there, the number of scholars amounted to forty. They are instructed in various branches of polite literature; they wear uniforms; and are trained to military manœuvres and exercises. The cheapness of this school, and its distance from the dissipation of large towns, render it of great public utility. The whole expence of each scholar, for his board, lodging, instruction, and various lessons, scarcely exceeds £20 *per annum*. It is curious to find a military academy established in the midst of rocks and forests, and within the walls of a convent; and to observe Benedictine Friars, instead of wasting their time in monkish ignorance, rendering themselves beneficial to society.

The chapter, composed of eighteen canons, who, upon a vacancy in the see, possess the right of electing the bishop, was fixed at Friburgh in Brisgau from the period of the reformation, which drove them from Basle, to 1677, when Friburgh was occupied by the French troops. In the following year the chapter was transferred to Arlesheim, where it now resides. The vacant canonries are filled alternately by the pope and chapter.

On the 14th of August 1786, I made, in company with several friends, an excursion to Arlesheim, which is a small but pleasant place, almost four miles from Basle. We had the honour of dining with the Baron de Ligertz, one of the canons. After a repast, no less elegant than agreeable, our host politely accompanied us to a garden styled The Hermitage, about a quarter of a mile from Arlesheim; which was laid out at the joint expence of the Baron and of Madame d'Andlau, the bailif's lady, with a view to employ the poor in a time of great scarcity, and to provide walks for the inhabitants of the town; the grounds are very extensive and pleasant. The walks are carried along the sides of the rocks, which are richly wooded, and through a delightful semicircular plain; bounded by fertile hills, and watered by a small lake, the borders of which are peculiarly wild and picturesque. Several caverns, hollowed and arched by the hand of nature, add to the romantic singularity of the scenery; while many transparent streams, conveyed from a considerable distance, fall in small cascades, or bubble from the ground like real springs. A fastidious observer might perhaps remark of this enchanting spot, that in a few circumstances nature has been too much sacrificed to art; and that there are some buildings less calculated to please than to surprise.

An elegant inscription for this charming hermitage was extemporarily composed by professor Oberlin of Strasburgh, one of our party.

HOSPES·AMICE·
HASCE·DELICIAS·
NATURÆ·DEBES·
DEBES·INDUSTRIÆ·
BALBINÆ·AB·ANDLAU·
HENRICI·A·LIGERTZ.

I shall close this letter with an account of my journey from Basle to Bienne, through the vallies of Lauffen, Delmont, Munster, and St. Imier, a tract of country in the bishopric of Basle, which is not inferior in beauty to the most delightful parts of Switzerland.

We quitted Basle early in the morning, and passed through a fertile plain watered by the Birs, and bounded by two chains of the Jura; one whereof terminates abruptly, supporting on its summit the castle of Wertenburgh. As we continued our route, the plain gradually narrowed, the mountains approached each other, and we entered the rich valley of Lauffen, enclosed between the rocks, sprinkled with groves of oak and beech, and exhibiting many romantic points of view. Lauffen, which gives name to the valley, has its own magistrates, and inferior courts of justice. The natives are indoltrious: those who are not employed in agriculture gain a comfortable livelihood from making cloth, spinning yarn, and knitting worsted stockings. The inhabitants of the valley talk German, and those of Sautier, a small neighbouring village, French; which language is spoken through the vallies of Delmont, Munster, and St. Imier.

About three leagues from Lauffen we came to a narrow pass, entered the valley of Delmont, near Sautier; quitted the high road, and gently ascended to Delmont, which stands pleasantly on an acclivity, backed by a ridge of rocks embrowned with firs.

In this small town reside the provost and canons, who compose the chapter formerly established at Munster; which was removed here, in 1630, on the introduction of the Reformed religion into the valley of Munster. At the extremity of the town is the episcopal palace, built, in 1718, by Conrad Baron of Reinach, and bishop of Basle: it commands a fine view of the adjacent country. The bailif, who holds his court in this town, has jurisdiction over the vallies of Delmont and Munster. In criminal proceedings he arrests and examines, and can inflict small penalties for trifling misdemeanors; but in all cases of notoriety, the delinquent is either tried at Porentru, or the bailif's sentence must be confirmed or amended in that supreme tribunal. Civil causes are first adjudged in the provincial courts; from whose decision an appeal lies to the episcopal tribunal at Porentru, and from thence to the imperial chambers of Wetzlar or Vienna. Delmont contains eight hundred inhabitants, who are all Catholics: they have their own magistrates and inferior tribunals.

About a mile from Delmont I stopped at Corrandelin, a small village in the Catholic district of the valley of Munster, in order to examine an iron foundry belonging to the bishop. The ore is drawn from the valley of Delmont, near the villages of Corou, Wick, Recolens, and Sepres; it is taken from the ground in small pieces, seldom larger than a pea. The director informed me, that it is usually found in that state, and very rarely in masses. The largest mass he ever remembered to have seen was ten feet long, two thick, and two broad. He added that the mountains in the neighbourhood abound with ore, which would yield considerable quantities of iron, if sufficient charcoal could be procured for the furnaces. As he was but lately appointed director, he could not give any accurate intelligence concerning the annual quantity of iron smelted in this foundry; but informed me, in general, that the different ores yielded altogether two thirds of pure mineral, the quality whereof was extremely fine, and scarcely inferior to the best sort exported from Sweden.

Corrandelin, together with the villages of Chatillon, Rossemaïson, Vellerat, Courchappois, Corbaon, Mervellier, and Elay, though connected, in regard to ecclesiastical affairs, with the valley of Delmont, form that part of the valley of Munster, which is called the *Catholic*, or *Lower* District. It is denominated the *Catholic* District, because the inhabitants are exclusively of the Romish church; and *Lower* District, because it is situated *unter den felsen*, or *below* the ridge of rocks which separate it from the *Upper*, or *Protestant* District. Before I proceed further, it will be necessary to describe the general divisions of this valley, and the civil and religious immunities of the natives,

natives, that you may be enabled to comprehend its complicated topography and curious political state, by which, though subject to the bishop of Basle, it is under the protection of the canton of Bern.

The valley of Munster, or Moitié, extends from the valley of Delmont to Pierre Pertuis; and is included in that part of the bishop's dominions which lie within the German empire. But, as the inhabitants have, for above three hundred years, been under the protection of Bern, the valley is considered by many authors as forming part of Switzerland. It is divided into two principal districts; the *Catholic* or *Lower* District, which lies at the extremity of the valley of Delmont, and comprizes the eight villages above mentioned; the *Protestant* or *Upper* District, which stretches from the chain of rocks near Corrandelin, to Pierre Pertuis, its southern boundary; and containing, 1. The Greater Valley, or Valley of Tavannes; and 2. The Lesser Valley, which is subdivided into Grand-Val, or the Great Valley, and the Little Valley, or the Valley of Sornetan.

The inhabitants of both districts are comburghers with the canton of Bern. The first treaty of comburghership was contracted in 1484. In that year, Bern and the bishop of Basle respectively supporting two candidates for the provostship of Munster, the former took possession of the whole valley, and exacted homage from the inhabitants. These disputes being compromised at the treaty of Corrandelin, Bern restored the valley to the bishop on the following conditions: that the inhabitants should be maintained in all their privileges; continue as comburghers with Bern, under the protection of that republic; remain neuter in case of a war between Bern and the bishop; and follow the standard of Bern, when engaged in hostilities against any other power. This treaty of comburghership, renewed at different intervals, has excited frequent disputes between Bern and the bishop, and particularly in 1705 and 1711 occasioned an open rupture. These disputes were finally adjusted at the pacification of Arau; when the bishop ratified the treaty of comburghership, confirmed all the rights and immunities of the inhabitants, and consented to the mediation and interference of Bern.

The affairs of religion excited for some time no less contest between the bishop and Bern, than the treaty of comburghership. The reformation being adopted, in 1531, by a considerable number of the inhabitants in the valley of Munster, civil commotions ensued; Bern interfered in behalf of the Protestants, and the bishop protected the ancient church establishment. It was at length amicably settled between both parties; that the majority of each parish should freely decide, whether the inhabitants should profess the Roman Catholic or the Reformed religion; and that the chapter of Munster should continue to receive the tythes, on condition of discharging the salaries of the Protestant ministers. In consequence of this rational compromise, the eight villages, which now form the *Lower* District, voted for the maintainance of the Catholic religion; and the parishes of the upper district for the Reformed church. Accordingly the two persuasions were respectively established in these two districts; the chapter retained its estates and tythes, and quitting Munster, where the new doctrines were admitted, retired first to Soleure, and afterwards settled at Delmont: but, as several Protestants and Catholics continued promiscuously to inhabit the two districts, disturbances were occasionally renewed. Nor were the religious differences entirely composed till the peace of Arau; which enjoined, that all the members of the two persuasions should be finally separated; that all the inhabitants of the *Upper* District, who then professed or should hereafter profess the Catholic religion, should retire to Elay; and that, in the same manner, the Protestants in the *Lower* district should remove to the *Upper* district. Since this period, the most perfect harmony has subsisted between them.

By virtue of the alliance with Bern, that republic annually deposes one of its magistrates and an ecclesiastic to this valley. The magistrate enquires if the civil and religious immunities have been preserved inviolate; the ecclesiastic who is called inspector of the churches in the valley of Munster, examines into the state of church discipline, and distributes among the inhabitants of the *Upper* district catechisms and psalters. Bern also approves the nomination of the ministers to the vacant benefices, some of whom are appointed and paid by the bishop, others by the chapters of Delmont and Bellelay; as the bishop or chapters possess the tithes in the respective parishes.

Soon after quitting Corrandelin, I entered the *Protestant* district, through a pass between two rocks, which nearly approach each other, and just leave an opening sufficient for the river Birs and the road, and continued along a narrow glen, about four miles in length. The road winds above the impetuous Birs, and at the bottom of rocks of white limestone, of inaccessible height, and though in most places absolutely perpendicular, yet agreeably feathered with trees; particularly towards their summits, which overhang, and scarcely admit the light of the sun. In the midst of this glen is La Roche, the first Protestant village in the valley of Munster; the houses stand on both sides of the Birs, where the rocks recede a little, and present a gentle slope.

On issuing from this glen, we entered a fertile plain encircled by hills, in the midst of which is situated the village of Munster or Moitier: it takes that appellation from the chapter of canons, who, upon the reformation, quitted this place of their residence, and settled at Delmont.

About half a mile from Munster we came into another glen, near three miles in length: it is called *Chaluet*, of a similar nature with that which we traversed between Corrandelin and the plain of Munster, but still wilder and more craggy, deeper, and more obscure. It is also divided by the Birs, which rushes through it with great impetuosity; and is so narrow, that the road occupies the whole space between the torrent and the mountain, and the wheels of our carriage frequently on one side brushed the rock, and on the other ran close to the precipice which overhangs the river. This causeway, over broken crags and steep precipices, does honour to the prince who carried it into execution. An inscription, which I observed near a bridge in the midst of this obscure glen, may perhaps seem exaggerated to a person unacquainted with the natural impediments of the country; but to me on the spot appeared strictly consonant to truth:

*Josephus Gulielmus
Ex Rinchnis de Baldenstein
Basiliensium Episcopus Princeps
Viam Veteribus Inclusam
Rupibus et Claustris Montium Ruptis
Birsâ Pontibus Stratâ
Opere Romanis Digno
Aperuit.
Anno. D. M.DCC.LII.*

Although in various parts of Switzerland I had frequently observed the justness of the remark, that in all deep vallies which intersect the mountains, the salient angles on one side alternately correspond with the cavities on the other; and that parallel strata of rock answer to each other, in all directions and at all heights; yet I never saw this fact more strongly exemplified than in the two ridges of lime-stone bordering this glen.

They are of a stupendous height; and the strata horizontal, inclined, or almost perpendicular on one side, are exactly similar and of the same thickness on the other: a circumstance which, joined to the corresponding situation of the angles, seems to prove, that they were formerly united, and either rent asunder by a sudden convulsion, or separated by the gradual attrition of the waters.

At the extremity of the Chaluet we entered another plain, well cultivated, and agreeably spotted with villages; and arrived towards the close of the evening at Molleray, where we passed the night. The people appear happy and contented, and are extremely industrious. The greater part are employed in agriculture; a few, encouraged by their neighbours of Locle and Chaux de Fond have lately introduced several trades into these mountains; and Belleval, a small neighbouring village, already contains five watchmakers.

From Molleray we continued along a fertile plain by the side of the Birs; through several pleasant and well looking villages, of which Tavannes, in German *Dachfeld*, is the largest. In about two miles we arrived at the extremity of the plain, which is closed by a rock, through which opens the celebrated pass called *Pierre Pertuis*. At the bottom of this rock, the Birs bursts from the ground in several copious springs, and turns two mills within a few paces of its principal source.

Pierre Pertuis is a large arched aperture through a solid rock, about thirty feet long, forty-five broad, and thirty high in the lowest part, which some aver to have been formed by nature, others by art. A Roman inscription over the arch, extremely defaced, has given sufficient employment to the ingenuity of antiquaries. Having seen several fac-similes, greatly differing from each other, I copied it as exactly as the height would permit.

AVMINI AVGS.
IM
CTA PER
OA VM PATER.
IVI COL. HELV.

Of this inscription many solutions have been attempted; but the most probable are the two following:

Numini Augustorum via facta per Titum duumvium Paternum II virum Colon Helvet.—Others read, *per montem durum Paternus*.

Both these solutions imply, that a road was formed through the mountains by Paternus, a duumvir, during the reigns of Marcus Aurelius and Venus. From the latter explanation, *per montem durum*, some antiquarians have endeavoured to prove, that he cut through the rock; and consequently, that the arch is the work of art, not of nature: while others maintain, that it by no means follows, even from this reading, that the rock was pierced by order of Paternus: but merely that the road was carried through the rock*. On examining the inscription with attention, the words which antiquarians have supplied, to support their particular systems, are extremely doubtful; and to me, who observed the arch without partiality to any hypothesis, it appeared to have been originally a great cavern, either totally formed by nature, or, if assisted

* The reader, who wishes to examine this subject with attention, is referred to Schæfflin's *Alsatia Illustrata*, and to a dissertation on the subject published by Buxtorf.

by art, that only a small part of its southern extremity was opened by the labour of man.

The southern extremity of *Pierre Pertuis* leads into the valley of St. Imier, sometimes called Enguel, which comprises the bishop's dominions lying in Switzerland. The inhabitants are Protestants, and governed by a bailif appointed by the bishop. He resides at Courtelari; but his authority is exceedingly limited by the various privileges, both civil and religious, possessed by the natives. Their religious immunities, confirmed by the bishop, are guaranteed by the four reformed cantons. The whole district lies within the Jura mountains, and is fertile in pasture; the inhabitants are industrious.

On arriving at the extremity of mount Jura, a sudden prospect burst upon our view, commanding the undulating country fertilized by the Aar, backed by that majestic chain of Alps which extends beyond the frontiers of Savoy. Descending gently into the plain with this glorious prospect before us, and which was heightened by the luminous splendour of the mid-day sun, we crossed the Sure, and finished our delightful expedition at Bienne.

From Pierre Pertuis to Bienne, a superb causeway is carried along a continual descent for six miles; it winds through thick forests, and overhangs the deep abyss, in which the Sure, a turbid and impetuous torrent, precipitates its course, always roaring, and frequently unseen, in its rocky channel*.

LETTER

* The whole bishopric of Basle is now annexed to France. In 1792 their troops overran the country of Porentru, or the German part, under the pretence of delivering the natives from slavery, and took possession of the famous pass of Pierre Pertuis. This district was ceded to France by the treaty of Campo Formio, and is formed into the department of Mont Terrible.

In December 1798 the Helvetic part of the territory was entered by the French general St. Cyr; he took possession of it in the name of the republic, declaring that France succeeded to the property, dominions, rights, and prerogatives of the bishop.

This district was also annexed to the department of Mont Terrible; and the proclamation of Mengaud to the unoffending natives, which subjected their country to the dominion of France, is a combination of arrogance, insult, and mockery.

"Peace and safety to all his friends! Mengaud, Commissary of the Executive Directory, to the inhabitants of all the countries not yet occupied by the French republic, dependencies upon the old bishopric of Basle, on the left bank of the Rhine.

"Citizens!

"The re-union of a part of the old principality of Porentru, equally decided the incorporation of your country with the French republic.

"This proceeding of France is that of a free people, substituted to the rights of a government against Nature, which overwhelms you. And because the exercise of those rights, become ours, did not sooner take place, by purging them of all that is incompatible with the dignity of man, it does not follow, that we have forgotten that you are still in chains. We come to break them.

"Happier than your fathers, whose blood flowed in the wars which founded the different species of government in Switzerland, and which have only bequeathed you a burthenome and degrading existence, you are at length going to enjoy the blessings of Providence, who only created men to make them members of one and the same family.

"You knew nothing but tithes, *corvées*, &c.; you had only priests, nobles, and privileged persons: your commerce, your industry, your arts, in short your very subsistence, all bore the stamp of the sacerdotal despotism so dexterously combined with a no less odious tyranny. Now you are men: liberty and equality will no longer permit among you any other distinction than that of merit, talents, and virtue. Called all indiscriminately to the helm of the society, in the support and safety of which you are all equally interested, your subsistence will in future be secure, the granaries of the French republic being the property of all its children. Your trade, encouraged within, protected without, will no longer be shackled. Industry, the arts, agriculture, will receive encouragements to be expected only from a nation victorious, free, powerful, and generous, enlightened on the nature of rights, and on the manner of exercising them.

"Learn to appreciate these advantages, and merit them by turning a deaf ear to the interested and treacherous insinuations of the evil-minded, and fools, who endeavour to depreciate them, and to mislead you.

"We

LETTER XIX.—*The town of Bienne.*

THE small territory of Bienne, containing scarcely six thousand inhabitants, lies between the lake and a chain of the Jura mountains; it is surrounded by the cantons of Bern and Soleure, the Bishopric of Basle, and the principality of Neuchatel. The town is situated at the foot of the Jura, and at a little distance from the lake; which is here about nine miles in length, and four in breadth: the borders are pleasing and picturesque; and the town of Nidau forms a very beautiful object upon its eastern side.

The Bishop of Basle is the sovereign of this little state: his power, formerly considerable, is at present exceedingly limited. Indeed the constitution of Bienne is of so very peculiar a nature, that I know not well by what name it can be distinguished: it cannot properly be called either a limited monarchy, or an independent republic; but seems rather to be a mixed government, partaking somewhat of both.

The Bishop of Basle receives, upon his promotion to the see, the homage of the citizens and militia of this town, with all the apparent ceremonials of the most absolute submission; but at the same time he confirms, in the strongest manner, all their privileges and franchises. He is represented by a mayor of his own appointing, whose power and office consist in convoking, and presiding in, the Little Council, as the chief court of justice; in collecting the suffrages, and declaring the sentence; but without giving any vote himself. And, although justice is carried on, and executed, in the name of the bishop, yet neither that prince nor the mayor has the prerogative of pardoning criminals, or of mitigating the sentence. All causes, civil as well as criminal, are brought before this council in the first instance; and, in more important proceedings, an appeal lies to the Sovereign Council: in both cases, each party chooses a member of the council to act as his advocate; which office he is obliged to discharge without fee or recompence.

The sovereign's revenue amounts only to about £300 a-year; but mean as his civil list is, it is still more considerable than his power; for he does not possess the least share of the administration. The legislative authority resides in the Great and Little Councils combined: the former consists of forty members, and the latter, in which the executive power is vested, is composed of twenty-four; the members of each must be married men. Both these councils elect their respective members; so far the constitution is entirely aristocratical. The burgomaster or chief of the regency, is chosen by the two councils, and presides at their meetings; he continues in office during life; but he, as well as the several magistrates, must be confirmed annually by the two councils. The salaries annexed to these posts are exceedingly moderate, and indeed the general expences of government are so very small, that, in proportion to them, its revenues may well be considered as abundantly ample.

It appears, therefore, that this Protestant republic, notwithstanding the sovereignty of its Catholic bishop, enjoys in the fullest extent the power of imposing taxes, contract-

"We come among you as friends. We are your brothers. Do not be afraid of any ill treatment. Persons and property shall be protected, as much as the enemies of liberty shall be oppressed. The most exact and strict discipline shall be observed by the warriors, who never had, nor ever will have, any other enemies than those of liberty. Such are the orders of the Executive Directory."

"MENGES, Commissioner of the Executive Directory."
ing

ing alliances, declaring war and peace; and, in short, of exercising every other act of absolute and independent legislation. This singular constitution is guaranteed by Bern, Friburgh, and Soleure, with whom the town is closely allied; in consequence of which, it becomes a member of the Helvetic Confederacy. This alliance between those cantons and the town of Bienne, is of a superior nature to that of the same cantons with the Bishop of Basle: for the town enjoys the right of sending deputies to every general diet, ordinary and extraordinary; whereas the bishop does not possess the same privilege.

The language of the country is a provincial German; but, as the territory borders upon the principality of Neuchatel, the inhabitants speak also a corrupted French. They are a very active and industrious people; several manufactures are established in the town, which, considering its size, carries on a tolerable trade.

I have often had occasion to observe, that the middling class of people in Switzerland are far more intelligent than those of the same rank in any other country. Accordingly, I invited last night my landlord of the Crown inn to sup with me; and found him by no means disposed to be a silent guest. He gave me a long account of the late ceremony, when the citizens did homage to their new bishop. I was pleased to hear him expatiate, with all the enthusiasm of national pride, upon the beauty and grandeur of the scene; the magnificence of the procession; the number of spectators, as well strangers as natives, who were assembled; together with the entertainments and balls that were given upon that occasion. By the lofty terms in which he spoke of this procession, you would have imagined, at least, that he had been describing the coronation of the Emperor of Germany, or the King of France; and, in truth, to an inhabitant of Bienne, whose government is administered without the least degree of external pomp, and where luxury has as yet made but little progress, the ceremony must have appeared a very striking spectacle. My host's narrative recalled to my remembrance the accounts of those ancient feudal sovereignties; when the great vassals of the crown did homage to their liege lord; and, while in *terms* they promised him unlimited obedience, maintained in *fact*, every essential of independence.

I have been amusing myself in some pleasant walks, that lie by the side of the lake, which is here prettily skirted with country houses. In my way I passed over a plain between the town and the lake, which the Sovereign Council, by a kind of agrarian law that does honour to the legislature, lately allotted, in distinct portions, to each burgher, for his own particular use; and it is entirely laid out in little kitchen-gardens. The general government, indeed, of this miniature state, is well administered. It has lately adopted the liberal policy of conferring the burghership at an easy rate: a wise regulation, which cannot fail of increasing the population of the town, and extending its commerce.

I know your sentiments much too well, my dear sir, to apologize for calling your attention in the present instance, as in some others, to these diminutive commonwealths. The various modifications of government, into which civil society is divided, is a speculation that will always afford matter both of entertainment and reflection, to a philosophic mind; and I am persuaded, that you consider the meanest spot of this globe consecrated by liberty, to be an object worthy, not only of your curiosity, but your veneration*. I am, &c.

LETTER

* Bienne, which forms an important pass into the Swiss territories, was occupied by the French on the 8th of February 1798, and annexed to France as subject to the Bishop of Basle, whose rights they assumed
in

LETTER XX.—*The town and Canton of Solcure.—Detail of the Government.—Ancient and New Burghers.—Assembly of the-Rosengarten.*

THE direct road from Basle to Soleure lies through the midst of the Jura mountains, along the romantic vale of Balstal, which is remarkable for its fertility. The road from Biemme to Soleure traverses a well-cultivated valley, watered by the Aar, at the foot of a piked ridge, which forms a branch of mount Jura; its sides, from the bottom to the summit, are so embrowned with overhanging forests of pine and fir, as to exhibit only occasional intervals of naked rock, beds of torrents, and a few solitary specks of pasture, and are so wild and steep as, within the extent of five leagues, scarcely to display the appearance of a single house, or a trace of the slightest foot-way. Near Soleure this chain of the Jura, called *Weissenstein*, abruptly diminishes in height, becomes gradually sloping, and is chequered to the summit with fields of corn and pasture.

in consequence of having seized his territories. It is difficult to decide whether the French accounts of the seizure of this little republic, are more burlesque or insulting:

“ 20 *Pluviose*.—The day before yesterday, at half past four in the afternoon, the French republicans under the command of General Nouvion arrived at the gates of Biemme, and were met by the two councils, who poured forth their vows for the re-union to the great nation. After a short interview, the Republicans entered the town, drums beating and colours flying; and on their arrival at the town-house the general read the proclamation, in the name of the French republic, which produced a surprising effect. Those who were seduced by the oligarchy of Bern were struck motionless with astonishment; but, on recovering their senses, they could not help declaring that Wisdom herself had dictated the proclamation. During a space of four hundred years no troops had been seen in the town of Biemme; the impression, therefore, was deeply felt. How glorious is the triumph of virtue and friendship!

“ The brave General Nouvion has already gained all hearts. His mildness, wisdom, and republican virtue, will make a deeper impression on the Helvetic people than the terrible and always victorious bayonet. I rejoice to hear him exclaim, “ Without morals, without virtue, there is no true happiness!” for, as Racine observes,

“ *La gloire des méchants en un moment s'éteint.*”

“ Citizen Bresson constituted mayor of Biemme by the French government, has acquired by his mildness and civism the general confidence and love of the inhabitants. He has several times appeared in the council, decorated with the national scarf. To him we owe the happy disposition of the people. To-morrow we shall solemnly plant the tree of liberty. Long live the Republic!”

The account of this ceremony is thus detailed in another letter:

“ Announce to the French republic the solemn ceremony of planting the tree of liberty, which took place at eleven in the morning.

“ The republican phalanxes, led by General Nouvion, assembled in the square before the town house, and were met by the French mayor and the magistracy. Instantly the tri-colour flag waved on the town-house, and warlike music struck up. Several energetic harangues, by the general, the mayor, and many citizens both of Biemme and France, made the deepest impression. Every sentence breathed the purest civism and the mildest philanthropy. Patriotic songs were then sung, a grand dinner was given by the general, and toasts drank to the immortality of the great nation, and to the wished-for union of the republic of Biemme to the first republic of the world. The festival was terminated by a ball, which continued the whole night, and every thing was conducted with the greatest decorum, and the most pleasing fraternity prevailed. The general was present for a short time, and his heart was penetrated with the view of this delightful picture; all feeling souls experienced the most exquisite sensations. The joy of the people was announced by a brilliant illumination, allegorical devices and patriotic songs. Beautiful young women appeared at the ball decorated with tri-colour ribbands and sashes. What a noble triumph for the French republic is that made by friendship and sweet fraternity!”

Moniteur, 13th Ventose (8th March).

Soleure is pleasantly situated upon the Aar, which here expands its banks and opens into a fine and broad river. I will not exert the privilege of a traveller, and tell you, what some extravagant antiquaries do not scruple to assert, that it was built by the patriarch Abraham; but you will have no difficulty, perhaps, in believing what others maintain, that it was one of the twelve towns which were destroyed upon the emigration of the original inhabitants into Gaul. It appears probable, from a great number of inscriptions, medals, and other antiquities, which have been found in the neighbourhood, that it was re-peopled by a Roman colony; and it certainly was a Roman station, as its antient appellation, *Castrum Salodurense*, implies. During that period of barbarism which succeeded the downfall of the Roman Empire, it was sacked and destroyed by those northern nations who over-ran the greatest part of Europe. From the time of its re-establishment, until its admission into the Helvetic Confederacy in 1481, its state was familiar to that of many other imperial towns, which acquired a gradual accession of territory, and, after various struggles, finally secured independence.

Soleure is a small but extremely neat town, surrounded by regular stone fortifications, erected in the beginning of the present century; the walls enclose scarcely more than fifty square acres, and, including the suburbs, contain about four thousand souls. Among the most remarkable objects of curiosity in the town is the new church, which was begun in 1762, and finished in 1772; it is a noble edifice, of whitish-grey stone, drawn from the neighbouring quarries, which is a species of rude marble, and receives a good polish. The lower part of the building is of the Corinthian, the upper of the Composite order: the façade, which consists of a portico, surmounted by an elegant tower, presents itself finely at the extremity of the principal street. Pizoni was the architect, and the expence amounted to at least £80,000; a considerable sum for so small a republic, whose revenues scarcely surpass £12,000 *per annum*. The interior is simple yet elegant, and decorated with a few modern paintings of inconsiderable merit, of which the most esteemed is the Last Supper, by Corvi, a Roman artist. A picture by Rubens and his scholars, in the church of the Cordeliers, and one by La Sueur, in that of the Capuchins, deserve perhaps to be noticed by the traveller who is fond of the fine arts. The town-house is not in itself worthy of observation, but is mentioned only as being the place of meeting for the Great Council and Senate.

The public prison newly constructed, is a solid edifice of stone, and well adapted to the purpose of the building; the prisoners being confined in separate cells. Although the penal laws are severe in theory, yet the judicial sentences in criminal affairs are so remarkably mild, that a prisoner, on his acquittal, wrote the following inscription on the wall of his cell: "He who is inclined to rob, and escape hanging, let him rob in the canton of Soleure."

The public library deserves to be mentioned, not for the number or rarity of the volumes, but for the literary zeal of the Abbé Herman, canon of the cathedral, to whom it owes its origin. On my first visit to this town, in 1776, there was no public collection of books; but a few years ago, that ingenious ecclesiastic amassed about four hundred volumes, obtained from government an apartment in the town-house, where he deposited them, and requested to be appointed librarian without a salary. His petition being granted, he continued to augment his little collection; and from this small beginning has increased it already to eleven thousand books, among which are above a hundred and fifty printed in the fifteenth century. At the two extremities of the room are inscribed the names of the benefactors to this library; but there is no fund yet established for its support or augmentation.

The Abbé has also begun to form a cabinet of medals; which, though at present extremely small, will increase like the library. He pointed out to me a very rare medal, discovered

discovered in digging the foundation for the new cathedral; it is in bronze, of the middle size; on one side is the head of Septimius Severus, with the inscription, *L. Septimius Severus Pius Aug. P. M. Tr. P. xviii. Cos. iii. P. P.* On the reverse, a figure sitting, before it a prow of a ship, and a genius or little boy. Great merit is due to the Abbe for laying the foundation of this library, in a town where literature is not much encouraged; and his disinterestedness is worthy of notice, as his income does not exceed £160 *per annum*. This learned ecclesiastic is now employed in writing an account of Soleure at the period of the Reformation, and is collecting ample materials for a complete history of the canton.

With respect to natural history, the only cabinet in the town is that formed by Senator Wallier: it is a small collection, but well chosen, and particularly interesting to the naturalist who travels into these parts, because the ingenious collector has chiefly confined himself to the minerals and petrifications of the canton.

The circumjacent country is exceedingly pleasing and diversified, and exhibits several points of view which are as agreeable as wild, and as beautiful as romantic. Among these we were particularly struck with the situation of the hermitage called des Croix, about half a mile from the town, near the stone quarry: it stands in a recess between two ridges of perpendicular rocks, watered by a lively stream; one extremity is closed by a small wood, and the other opens into fertile grounds backed by the dark Jura. Among the villas, in the environs, remarkable for their position, may be mentioned Ricaberg, built by M. de Vigur; it stands at the bottom of a gentle hill, declining towards the winding Aar, and commands a view of Solcure, half hid by the intervening trees, and Bleikenberg, belonging to Major de Roll, situated amid waving grounds divided into enclosures, similar to the fertile counties of England, the Jura rising like the highlands of Scotland, and at a distance the sublime Alps, which characterise this romantic country.

The canton of Soleure, which holds the eleventh rank in the Helvetic Confederacy, stretches partly through the plain, and partly along the chains of the Jura, and contains about fifty thousand souls, including the inhabitants of the capital. The soil for the most part, is fertile in corn, and those districts which lie within the Jura, abound in excellent pastures. The trade both of the town and canton, is of little value, although the situation is commodious for an extensive commerce. It is divided into eleven districts or bailliages, called Interior and Exterior; the former are governed by bailiffs, who are senators, and remain in the towns; the latter, by bailiffs, drawn from the members of the Great Council, who reside in their bailliages.

The following is a list of the bailliages, with their average annual value; the four first are interior, the remainder exterior.

Buckegberg	-	£166	Beckburgh	-	£750
Kriegstetten	-	146	Goefgen	-	500
Laeberen, or			Olten	-	333
Grenche	-	83	Dorneck	-	834
Flamenthal	-	62	Tierstein	-	417
Falkenstein	-	546	Gilgenberg	-	375

The inhabitants of the canton are Catholics, excepting those in the bailliage of Buckegberg, who profess the reformed religion. In spiritual affairs the Catholics depend on three bishops: the greater part of the capital, the bailliages of Laeberen and Flamenthal, are in the diocese of the Bishop of Lausanne, resident at Friburgh; the remainder of the capital, the bailliage of Kriegstetten, and the villages in the bailliage of

Olten, in that of the Bishop of Constance; while the other bailliages, and the town of Olten, depend on the Bishop of Basle. But neither of these bishops can issue any ordinance, or even visit their dioceses, without the approbation of the Senate. There are two chapters in this canton; one at Soleure, founded in 930 by Queen Bertha, widow of Rhodolph II. King of Burgundy, composed of a provost, whose salary amounts to 360*l.* *per annum*, and of eleven canons, each of whom enjoys a revenue of 160*l.* The provost is chosen by the Senate, and the canons are appointed alternately by the Pope and Senate. The other chapter, of Schoenenwerth, founded by the ancient counts of Falkenstein, consists of a provost and five canons, nominated by the Senate; the annual salary of the provost is 125*l.*, and of each canon 100*l.* There are also an abbey of Benedictines, four convents, and three nunneries; the revenues of which amount to 2,250*l.*

The principal charitable institutions are, an hospital at Soleure, and another at Olten, for the reception of burghers, subjects, and foreigners; the foundation of Thurigan, for old persons of both sexes, belonging to the burgherhip; a foundling hospital for orphans, and for children of poor burghers; and the hospital of St. Catharine, for the insane and incurables.

The only persons in the canton of Soleure, who profess the reformed religion, are those who inhabit the bailliage of Buckegberg. In ecclesiastical affairs, the inhabitants though subject to Soleure, are under the protection of Bern. Formerly this complication of political and religious interests created frequent misunderstandings between the two cantons, but matters were amicably and finally adjusted, on the 18th of November 1681, at the treaty of Winingen. The inhabitants take the oath of fidelity, every third year, to the government of Soleure; but if aggrieved in their religious establishment, can have recourse to Bern. The Senate of Bern nominates to the vacant benefices, but the priests are under the necessity of obtaining the confirmation of the chapter of Soleure. A deputy from Bern presents the new minister to his parishioners; but the bailif is obliged to be present at this ceremony, as deputy from the republic of Soleure. Bern enjoys also supreme jurisdiction in criminal affairs. If a criminal is arrested for any capital offence, he is tried by the bailif of Buckegberg, and the jury of the bailliage; and if condemned to death, he is delivered for execution to Bern, provided that republic defrays the expence of the trial. Soleure enjoys all the other rights of sovereignty; such as the power of levying taxes, appeals in the last resort; and even decides all matrimonial and ecclesiastical concerns, with this proviso, that the decision shall be regulated according to the articles of the treaty of Winingen. Among the natives in the canton, several inhabiting the bailliages of Thierstein and Gildenberg were serfs; but, in 1785, their servitude, so contrary to the principles of that equal liberty which pervades this country, was, to the honour of the present government, abolished.

The canton furnishes France with two companies for the Swiss guards, and several companies in the different marching regiments, according to the capitulation concluded between the King of France and the Catholic cantons, in 1764, for the term of twenty-five years. It has also a regiment in the Spanish service; of which the colonel and companies of fusileers can only be taken from the *antient* burghers.

With respect to the militia, all the males from the age of fifteen to sixty, are formed into six regiments, consisting of about 8000 men, exclusive of 240 dragoons, and the corps of artillery, amounting to 600. The colonel of each regiment is always a senator, and the major a member of the Great Council, who is usually an officer retired from foreign service; the captains are either members of the Great Council, or *antient*

burghers ; the first lieutenants are generally *antient* burghers, while the rank of second lieutenants and ensigns is usually filled by the principal peasants.

The militia are assembled and reviewed in May and September, and in the spring and autumn exercised in the respective villages by the under-lieutenants and ensigns. According to a plan of defence, regulated in 1668, between the members of the Helvetic Confederacy, the canton of Soleure is bound to furnish 600 for its first contingent ; for this supply, 100 men, together with officers, are annually selected from each of the six regiments; who are to hold themselves in readiness to march at a moment's warning. In case of necessity, this contingent may be doubled or tripled in the same manner. The burghers are incorporated in the company of fusileers, and exercise themselves on Sundays and saints' days, after divine service, by shooting at marks: government furnishes powder and ball, and distributes prizes to the best marksmen. The remaining inhabitants of the capital and environs, who are not burghers, form a separate body, commanded by the captain of the town ; they are also occasionally exercised, and mount guard on the day of St. John the Baptist, when the *Rosengarten*, or the general meeting of the burghers, is assembled.

The sovereign power resides in the Great Council, which consists of a hundred and two members, chosen by the Senate, in equal proportions, from the eleven tribes or companies, into which the *antient* burghers are distributed ; and in all instances, the new member is taken from the company to which the last member belonged.

The prerogatives of the Great Council are, to enact and abrogate laws ; to explain obscure parts of the constitution, and make alterations in the form of government ; to levy taxes, declare war, and conclude peace ; to contract alliances, receive appeals in criminal causes from the burghers of the capital, and in civil processes, above the sum of 100 Swiss livres, or 6l. 3s. ; to confer the *new* burghership ; elect the treasurer, or fourth chief of the republic, from the *antient* eleven senators ; nominate to the seven exterior bailliages, and to the four Italian governments of Lugano, Locarno, Mendrisio, and Valmaggia, when the appointment belongs to Soleure ; chuse the deputies for the diet of Frauenfeld, and those for extraordinary meetings of the Helvetic Confederacy ; though in both these cases it is the custom to appoint a senator, and usually one of the four chiefs, the reigning avoyer excepted, who is not permitted to be absent during the year of his administration.

There are generally a few supernumerary members in the Great Council, which circumstance proceeds from the method of appointing the bailifs. On the nomination of a bailif, his seat in the Great Council being deemed vacant, is on the next day filled up by a member of the same company in which he is inscribed. At the conclusion of his bailliage he again takes his seat, preserving his *antient* rank, though considered as a supernumerary, until one of the six members of his tribe makes a vacancy. To be qualified for admission into the Great Council, the candidate must be twenty years of age, an *antient* burgher, and a member of the same tribe in which the vacancy happens ; but if inscribed in a company different from that of his father, he must, according to a decree passed in 1764, have been a member of that company during a year.

The Great Council assembles ordinarily once every month ; and extraordinarily, when convened by the Senate.

The Senate, or Little Council, a constituent part of the Great Council, is composed of the two avoyers or chiefs of the republic, who annually alternate ; the chancellor or secretary of state, who has no vote ; and thirty-three senators drawn from the remaining sixty six members of the Great Council, divided into eleven seniors, and twenty-two juniors. From the seniors, the two avoyers, the banneret, and treasurer, are always chosen. Upon a vacancy among the eleven, the right of election, though residing in the juniors,

juniors, is always exercised according to seniority : the most antient in rank among the three junior counsellors, of the same tribe to which the late member belonged, is immediately appointed, or rather confirmed, by the juniors. Upon the death or promotion of a junior, his place is immediately filled up by the two avoyers and eleven seniors.

The Senate examines and digests all affairs before they are submitted to the Great Council ; is entrusted with the executive power and care of the police ; receives all appeals in the first instance from the inferior courts of justice ; gives judgment in all civil processes not exceeding the value of 100 Swiss livres ; and possesses supreme and final jurisdiction in criminal causes, except those in which a burgher of the capital is concerned, who may appeal to the Great Council.

The Senate also nominates, either directly or indirectly, to most of the important charges of the republic, and confers the principal ecclesiastical benefices ; it assembles regularly three times a week, and is convoked on extraordinary occasions by the reigning avoyer. A senator must be twenty-four years of age, member of the Great Council, and drawn from the same company to which the last senator belonged.

The salaries of the principal magistrates are :

	£.	s.
The reigning avoyer, about	363	
The avoyer out of office	137	10
The seniors, each	46	
Chancellor	208	
Attorney-general, including his salary of senator	100	
The juniors, each	37	10

Government draws its principal revenues, which do not exceed 12,500*l.* *per ann.* from the following sources. 1. A tax, called the tax for fortifications, laid on the funds of the tribes and monasteries in the town, and on those of parishes in the bailliages. 2. Tythes, and *rentes foncieres* belonging to the state. 3. Tolls. 4. Excise on wine. 5. Interest of money placed out in the canton and in foreign countries. 6. Monopoly of salt. 7. Revenues from the bailliages. 8. Subsidy from France ; about 1108*l.* 9. Sundry small sources, such as demesnes, estates, salaries of vacant benefices, &c.

The principal departments of government are, 1. The tribunals ; which comprise the inferior courts of justice, and the Secret Council, consisting of seven members, namely, the two avoyers, the banneret, the treasurer, the first senior senator, the chancellor, and the attorney-general ; should any of these persons be absent, their places are supplied by the antient senators, according to seniority. 2. The boards of war. 3. Of the rights, called *droits regaliens*. 4. Of finances, agriculture, and public buildings. 5. Of the police. 6. Of ecclesiastical affairs, charitable institutions, and schools.

The burghers are divided into *antient* and *new* ; the antient are alone capable of being members of the Great Council, or enjoying any share in the administration of affairs. The origin of this distinction is dated from 1681. Several foreign families, which settled at Soleure and obtained the right of burghership, being admitted into the Great Council, gave umbrage to those illustrious families whose ancestors had, by their valour and prudence, laid the foundation of the republic. To prevent the farther participation of honours and emoluments, to which they conceived themselves solely entitled, the Great Council confined the offices of government exclusively to those families, which at that epoch enjoyed the rights of burghership, until they were reduced to the number of twenty-five. It was at the same time enacted, that these families and their descendants should be distinguished by the name of *antient* burghers ; and that those, who

afterwards received the burghership, should be called *new* burghers; and to enforce these regulations, that any burgher who made any proposition contrary to this law, should be banished from the canton, and his goods confiscated.

Besides this exclusive privilege, the *antient* burghers enjoy the sole right of being appointed canons in the chapters of Soleure and Schœnewerth, and of holding any ecclesiastical benefice in the gift of the Senate. But as there is at present a great deficiency of clergymen among the *antient* burghers, it will probably soon be thought necessary to dispense with this law, and permit the *new* burghers, and all subjects of the canton, to be candidates for vacant livings.

About eighty-five families possess the right of *antient* burghership; and of these, about thirty-four of the most illustrious supply the members of the Great-Council, and fill the various departments of government.

The rights of the *new* burghers consist in nominating and annually confirming the avoyer, the banneret, and *grand sautier*, or lieutenant of the police; but as they always chuse those persons who are selected by the Senate, as they exercise this privilege in conjunction with the *antient* burghers, and as by the edict of 1681 they must retire from the assembly, should there be any opposition, this right of election is little more than a mere formality. In all other instances, excepting in those concerns which relate to government, the *new* burghers enjoy the same privilege as the *antient*, such as freedom of trade and commerce, the property of houses and land in the capital and its district, and are also entitled to hold ecclesiastical benefices in the gift of the chapters and individuals.

The burghers, both *antient* and *new*, are distributed into eleven tribes or companies, each whereof furnishes three senators and six members of the Great Council. Every person may chuse the company in which he inscribes his name; but he cannot afterwards change it. For the purpose of obtaining a place in the government at an early period, a young noble selects that company in which there is a probability of a vacancy; but should he fix upon one different from that in which his father is incorporated, he must have been received a member during a whole year, before he can be a candidate for admission into the Great Council.

The general assembly of *antient* and *new* burghers, called *Rosengarten*, who meet on the day of St. John the Baptist, for the purpose of electing or confirming the charges of avoyer, banneret, and *grand sautier*, deserves to be described for its singularity, and will convey to you some idea of those annual elections, or rather confirmations, of the principal officers, which take place in most of these aristocratical states.

This assembly is held in the church of the Cordeliers, and denominated *Rosengarten*, or Garden of Roses; either because a nosegay, which every burgher carries in his hand, was formerly composed of roses, or because this meeting used to be convened in the garden of the Cordeliers, which is said to have been called the Garden of Roses.

About six in the morning the avoyer out of office, the senators, members of the Great Council, and the *antient* and *new* burghers, assemble in their respective companies. After the repetition of certain signals, the reigning avoyer, accompanied by the chancellor, the secretary of the finances, and several other officers of state, repair, with drums beating and trumpets sounding, from the town-house to the church of the Cordeliers, where, after presenting his offering upon the altar of the Virgin, he seats himself on a throne near the altar. Soon afterwards the senators and remaining members of the Great Council appear at the head of their respective tribes; and having presented their offerings, the avoyer out of office places himself near his colleague on the throne. At the conclusion of a mass accompanied with music, all but the burghers retire, and

the doors of the church are closed. The reigning avoyer, with a sceptre in his hand, pronounces an harangue ; then delivering up the sceptre and seals, resigns his dignity, and receives the thanks of the assembly, by the mouth of the attorney-general, for his zeal and attention during the year of his government. Next follow, in the same manner, the resignations of the banneret and of the attorney-general ; the former of whom is thanked, in the name of the assembly, by the attorney-general, and the latter by the avoyer who has just resigned.

This ceremony being finished, the two avoyers, bannerets, attorney-general, and antient senators, retire from the choir to another part of the church ; and the chancellor summoning the junior senators into the choir, pronounces the name of each antient senator, and of the attorney general, and demands whether the junior senators are pleased to confirm them in their charges for another year. This being obtained, the chancellor and junior senators repair to the assembly in the body of the church, where the chancellor recites the names of the senior senators and attorney-general confirmed by the juniors, and demands the approbation of the whole assembly of burghers. Upon this the avoyer, who has just resigned, and all the senators, except the avoyer out of office and the banneret, come into the church, and take the usual oaths. The chancellor then acquainting the assembly that they must elect the reigning avoyer ; the avoyer who has just resigned proposes his colleague ; the officer of state, called the *Grand Sautier*, cries out, " Let all those who chuse to elect the right noble A. B. reigning avoyer, hold up their hands under oath ;" and immediately notifying his election, the avoyer enters the church, takes the oath from the chancellor, and administers it to the *grand sautier*. The election of the banneret is made in a similar manner : having resigned his office, he is proposed to the assembly by the reigning avoyer, and being accepted, gives his hand to the reigning avoyer, as he never takes the oath but in time of war. The *grand sautier* is likewise recommended by the reigning avoyer, and, re-entering the church, takes the oath to government.

At the end of these elections, several decrees of the Great Council are read, particularly that which relates to the right of *antient* burghership, and the election of the avoyer, banneret, and *grand sautier* ; by which it is enacted, that should any opposition be made to the regular order of appointment, the *new* burghers shall retire from the assembly, and the election be vested solely in the *antient* burghers.

The same magistrates are always re-elected or confirmed in their several places : the avoyer out of office is nominated reigning avoyer ; on the death of either of the avoyers, the banneret is of course appointed to the vacant office, and succeeded by the treasurer, after the formality of a nomination. When the ceremony is concluded, the reigning avoyer, at the head of the Senate, passes through a double line of troops under arms to the town-house, where the first magistrate and the antient senators confirm the junior senators ; he then returns to his own house, accompanied by the Senate and members of the Great Council, and is complimented first by the banneret, and afterwards by the chancellor.

From this detail we may conclude, that those authors have erred who call the government of Soleure aristo-democratical, for it is certainly a most complete aristocracy ; inasmuch as the supreme government resides in the Great Council, of which the members are exclusively taken from the *antient* burghers ; as there are only eighty-one families which enjoy that right, and no more can be added until they are reduced to twenty-five ; as of these scarcely more than thirty enjoy any share in the government ; and lastly, as the election and annual confirmation of the principal magistrates is confined to the *antient* burghers, should there be any opposition in the general assembly called Rosengarten.

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The government, however, under whatsoever title it may be classed, is mild and equitable, and the people are tranquil and contented *.

LETTER XXI.—*Treaties with France.—Reflections on Foreign Service.*

THE French ambassador to the Helvetic body resides in Soleure, and distributes those annual pensions which the King pays to the Catholic cantons. Louis the Eleventh was the first French monarch who employed Swiss troops, and granted subsidies to the states, since considerably augmented by his successors. The perpetual alliance which Francis the First concluded with the Swiss cantons, soon after the battle of Marignano, is considered as the basis of every subsequent treaty, and greatly contributed to increase the power of France; the Swiss infantry aided Henry the Fourth in establishing himself on the throne of his ancestors, repressed the contending factions during the turbulent

* The truth of this remark was fully proved by the conduct of the people during the effervescence of the Swiss revolution. Although the offices of government were exclusively confined to a small number of persons, and notwithstanding the vicinity to the canton of Basle, where disaffection had made a rapid progress; yet, a few seditious persons excepted, the inhabitants of the whole canton, both in the town and country, rallied round the whole constitution. Even after the French troops were ready to enter the canton, and after the government of Bern had tamely consented to reform their constitution, the people of Soleure manifested an extraordinary dread of innovation.

A printed paper from the agents of France, under the title of the patriots of Soleure, was dispersed, in which, after declaring their resolution to maintain the religion of their fathers, and to preserve their independence and connection with the Helvetic body, they required the union of the citizens of the town and canton, and the convocation of a national assembly.

These insidious propositions excited general indignation; and on the 6th of February the militia of the canton marched to the town, the artillery was planted on the ramparts, many suspected persons were arrested, and all the inhabitants prepared to defend their liberties to the last extremity.

But the magistrates, intimidated by the fluctuating counsels of Bern, and threatened with the instant approach of the French, declared their resolution to adopt the new principles, and summoned representatives of the people to arrange a new constitution. Yet these very representatives, thus convened to alter the constitution, were positively instructed by their constituents to insist that the antient form of government should be maintained in all its parts. With a view, however, to conciliate the French, and yet to prevent hasty innovations, a decree was issued on the 11th of February, in the name of the avoyer, great and little councils, and deputies of the towns and country, "for effecting such alterations in the form of government as should introduce an equality of rights between the inhabitants of the towns and those of the communes."

This decree was preceded by a solemn oath, taken by all the members of the government and the deputies, "to maintain inviolate their holy religion, as transmitted by their forefathers; to defend to the last man, against all enemies, that precious jewel of liberty and independence, purchased with the blood of their ancestors; and acting in the character of free Swiss, never to separate themselves from the Helvetic confederacy; but, on the contrary, to fulfil all the duties contracted in virtue of existing alliances."

It then abolishes all distinctions between the inhabitants of the towns and country with respect to representation and eligibility to the offices of government, and establishes a committee to arrange with the representatives the new constitution.

It ordains that, in the mean time, the established government should continue to exist provisionally; that it should be respected, and remain in force until the formal establishment of the new constitution.

But the people were so little inclined to exercise their new rights, that no steps were taken to carry the decree into execution, and the dissolution of the ancient government was only effected by the capture of Soleure. The body of the people manifested the greatest ardour. Seven thousand troops co-operated with the army of Bern, and all the forces of the canton would have come forward in defence of their country, had not the post of Lengnau been surprised, the advanced guard at Grange defeated, and Soleure captured.

The extraordinary circumstances which led to these events are related in the Introductory Chapter.

Shawembourg, in accepting the capitulation, promised security to persons and property; but in defiance of this promise, four-and-twenty villages in the vicinity were given up to plunder, the inhabitants were disarmed, the arsenals seized, and some of the magistrates, after being paraded round the town in barbarous triumph, were inhumanly put to death.

minorities

minorities of Louis the Thirteenth and Fourteenth, and distinguished themselves during the continental wars in which France was engaged, by fidelity, valour, and discipline.

The general alliance between France and the whole Helvetic union, ratified by Louis the Fourteenth in 1663, was to remain in force during the joint lives of that monarch and his son the dauphin, and for eight years after the death of either. Towards the end of his reign, Louis, on his son's death, proposed to renew the treaty in his own and his successor's name; but the Protestant cantons refusing their consent, it was concluded only with the Catholic cantons and the republic of the Vallais.

This alliance differed from the former treaties in three essential articles: 1. If France was invaded, the contracting republics permitted an additional levy to be raised at the King's expence, not exceeding sixteen thousand men; 2. If the Helvetic body, or any particular canton, should be attacked by a foreign power, the King engaged to assist them with as many forces as were judged necessary; and 3. Should dissensions arise between the contracting cantons, the King was, at the request of the aggrieved party, to employ his mediation, and that failing, he bound both himself and his successor to compel the aggressor to abide by the treaties concluded between the cantons and their allies. This last article, as it authorized the interference of the King of France with the politics of Switzerland, appeared dangerous to many of the Swiss, and inconsistent with that absolute independence which they had hitherto prized above all other advantages.

France having long in vain attempted to persuade the Protestant cantons to join the alliance, for the purpose of renewing a general treaty with the whole Helvetic body, at length succeeded, after much opposition. This important league was concluded at Soleure in May 1777, between the King of France on one side, and the thirteen cantons and their allies on the other, to continue in force during fifty years. By this treaty it is agreed, that on the invasion of France the cantons and their allies shall furnish an additional levy of six thousand men; and if the cantons or any of their allies are attacked, the King, if required, engages to furnish them, at his own expence, with such succours as may be deemed necessary. That article of the treaty with the Catholic cantons in 1715, which related to the mediation of the King, in case of any disputes between the thirteen cantons, is very wisely omitted.

Before this alliance, none of the Protestant states received pensions from France; but by the sixteenth article, the Protestants of Glarus and Appenzel, and the town of Bienne, agreed to accept *les argents de paix et d'alliance*, as these subsidies are here called. The acceptance of pensions derogates greatly from that spirit of absolute independence, which all the Protestant states of Switzerland have hitherto affected to profess; and it would have reflected much greater honour on the Swiss nation, had the whole body imitated Zurich, Bern, Basle, and Schaffhausen, in forming the league upon terms of perfect equality, and rejecting the proffered pensions, which give an air of venality to their treaties with France.

It has long been a controverted question, whether Switzerland gains or loses by furnishing troops, according to the tenor of her alliance with France, Spain, Sardinia, Naples, and Holland. It has been urged, that without these supplies to foreign nations, Switzerland would be overstocked with inhabitants, and the natives compelled, like the northern hordes of old, to emigrate for subsistence, as in many parts there is no commerce, and the mountain tracts cannot supply sufficient provision for the inhabitants. In reply it may be alleged, that the Swiss do not use all the resources in their power: commerce might be more generally cultivated and encouraged; as there is no part of Switzerland far removed from the principal rivers and great lakes, most of which have a direct communication with the sea.

But, to be convinced that they have not exhausted all the advantages to which they might resort, let them look back on ancient Greece, and the immense populousness of so confined a country; or, what is more open to their observation, let them consider the present state of the United Provinces, and the abundance which those industrious people enjoy on a tract of land snatched from an element perpetually reclaiming its prior occupancy! But the Swiss need not be reminded of antient or foreign examples: Geneva and St. Gallen are, for their extent, exceedingly populous; and yet the productions of their lands are by no means sufficient to support all the inhabitants. Appenzel and Vallengin are entirely mountainous; nevertheless both those districts are remarkably well peopled, and derive from commerce and industry all the necessaries of life in great abundance. Indeed Switzerland is so far from being overstocked with inhabitants, that in most of the great towns there is a manifest deficiency; and in several parts of the country, hands are frequently wanting for the common purposes of agriculture.

These reflections seem to prove the mistaken policy of Switzerland, in letting out her troops to foreign states. On the contrary, many circumstances may be alleged in its favour. This practice has tended to keep up the military spirit of the Swiss, even during a state of profound peace, which has now continued, with few interruptions, for three hundred years. The states not only have in constant reserve, and without expence, a body of well-disciplined forces, which they can recall at a moment's warning; but it becomes the interest, for that reason, of those powers whom they furnish with men, not to foment any divisions, which might render the presence of their troops necessary at home. Add to this, that the privileges which the Swiss enjoy in France, and the advantageous articles relating to commerce secured to them in all their treaties, seem to strengthen the argument for continuing their military connections with that kingdom.

This argument, however, would be more conclusive, if those privileges were still preserved in the same latitude as was granted by the ninth article of the Perpetual Peace concluded with Francis I. in 1516, and confirmed by several successive treaties. But the case is far otherwise. The immunities have been gradually and almost imperceptibly violated: the Swiss merchants were subjected to the poll-tax, and fresh duties, contrary to the tenor of their rights, imposed on their merchandize. During the administration of the Duke d'Aiguillon, the Swiss complaining of these infractions, a negotiation was begun at Soleure with the French ambassador, which produced, however, no other effect than a short letter from the minister, declining to redress the grievances.

On the late renovation of the Perpetual Peace in 1777, it was expected that this matter of dispute would be amicably adjusted; and the Count de Vergennes insinuated that such was the intention of the court of Versailles. Many cantons, and particularly Zurich, were principally induced by these expectations to accede to the alliance; but not wholly trusting to the promises of the French cabinet, it was insisted that an article explaining and confirming the said privileges should be inserted in the new treaty. The minister, with his usual address, eluded a direct mention of the demanded rights; but not to lose the confidence of the nation, at a time when he most wished to obtain it, the King engaged, by the 18th article, to *preserve to the Swiss those privileges and advantages to which they had a legitimate right, and which they had hitherto enjoyed in France*; and the Swiss agreed to postpone the precise determination of the nature and extent of the said privileges to future conferences, wherein those matters should be regulated with fidelity and equity.

It is a matter of astonishment that the Swiss were contented with so ambiguous a declaration, or were induced to believe that the French court would preserve to them their legitimate immunities, in the moment when that legitimacy was a subject of contention.

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The Helvetic body had soon occasion to repent of their credulity: for, in 1781, the King of France issued an edict, irrevocably subjecting the Swiss who possess lands in France to the poll tax, and to all national imposts, and laid the same duties on their merchandize imported into France, as are paid by the merchants of other countries, cheese and linens excepted, which were taxed at a reduced value.

But a still severer blow was levelled against the Swiss in 1786; when, notwithstanding the express reservation granted in the perpetual peace, the importation of their linens was prohibited in France. The prohibition of this branch of commerce, which furnished employment to so many hands in various parts of Switzerland, particularly in the cantons of Zurich, Glarus, and Appenzel, and was almost the sole resource of the natives, spread a sensible alarm, but was not productive of serious consequences. After the first surprise and agitation, the industry of the Swiss was not abated; and the linens found their way into France either by contraband trade, or by contract with the French East-India Company.

LETTER XXII.—*The Canton of Zug.*

Zug, August 5.

WE yesterday quitted Zurich*, and walked to Albis, a small village about three leagues distant, situated near the summit of a mountain, much visited by travellers for the variety and extent of the prospect.

We fortunately escaped a violent shower of rain, accompanied with a storm of thunder and lightning, which had threatened for some time, and began immediately upon our arrival; but we were well housed, and our host gave us a good supper, and an excellent bottle of Muscat wine. We were abroad this morning by five, and had a very agreeable walk to Zug; the weather, which had of late been very sultry, being cooled by the lightning and rain. We passed over the field of battle at Cappel, where Zuing was slain; regretting this instance of disunion between the Swiss republics, and lamenting the premature death of that great reformer. We pursued our journey through a pleasant country, so thickly planted with fruit-trees, that I could hardly distinguish any other sort. Indeed, we had before remarked the prodigious number of fruit-trees in several other parts of Switzerland, which is in many places almost a continued orchard.

Zug, the capital, stands delightfully upon the edge of a beautiful lake, in a fertile valley, abounding with corn, pasture, and wood. This canton formerly belonged to the House of Austria, and continued faithful to that family when the neighbouring states had formed themselves into independent republics. As it lies between Zurich and Schweitz, the communication between those two cantons was maintained with difficulty; and by this means frequent opportunities were afforded to the House of Austria of invading and harassing the Swiss. Under these circumstances, the six allied cantons, in 1351, laid siege to Zug, which was resolutely defended by the inhabitants; but as Albert Duke of Austria was unable to assist them, the town at length surrendered upon the most honourable conditions. The generosity of the conquerors was equal to the

* I have, in this part, arranged the preceding letters differently from the former editions, and according to the journal of my tour in 1785; though I did not at that time proceed from Soleure to Zurich, yet I have thought proper to resume the order of my first journey in 1776, and to bring the reader back to Zurich, from whence I take my departure, as before, to Zug. The traveller who enters Switzerland at Schaffhausen, and quits it at Geneva or Neuchatel, will perhaps find this itinerary from Zurich to Basle, Bienne, Soleure, and thence to Bern and Lucerne, more convenient than that from Zurich immediately to Zug and Lucerne; while those who quit Switzerland at Basle will prefer the latter.

courage of the vanquished; for, in consequence of this submission, the canton of Zug was delivered from the yoke of a foreign master; obtained liberty and independence; and was admitted into the Helvetic Confederacy upon equal terms.

The government of this little canton is exceedingly complicated; and the inhabitants of the town have somewhat more influence, and enjoy a greater share in the administration of affairs, than those of the capital burghs in the five other democratical cantons. The supreme power resides in the inhabitants of Zug, Bar, Egeri, and Meutzingen, who assemble yearly to enact laws and choose their magistrates. The Landamman, reciprocally elected from each of the four districts, continues three years in office when taken from Zug, and but for two years when chosen from each of the three other districts. The general administration of affairs is entrusted to the council of regency, composed of forty members, of whom thirteen are supplied by the district of Zug, and twenty-seven selected equally from the three remaining communities. This council, as well as the Landamman, resides always in the capital*.

Oswald, one of our old British kings, is the tutelar saint of this place; and in the church is his statue, with the following inscription:

Sanctus Oswaldus Rex Angliæ Patronus hujus Ecclesiæ.

Oswald† was a king of Northumberland in the seventh century; and is much renowned among the monkish writers for his chastity, piety, and power of working miracles. I have endeavoured to discover the connection between a British king, under the heptarchy, and a small canton of Switzerland; without reflecting how fruitless is the attempt to give any reason for long established customs. In the church of Rome saints are easily transplanted into any soil; and caprice, as well as superstition, may have inclined the inhabitants of Zug to adore a saint whose name is barely known in his own country. I am, &c.

LETTER XXIII.—*The Town and Canton of Lucern.—General Pfiffer's Model.*

WE took boat at Zug, and being rowed across the lake, which is about three leagues long and one broad, were landed at a village in the canton of Schwitz. From thence we walked to Küssnacht, capital of a bailliage subject to Schwitz, and in our way passed by a small chapel sacred to William Tell, erected on the spot where, it is said, he shot the Austrian governor. At Küssnacht we embarked upon the lake of Lucern, and were much struck upon our approach with the fine situation of that town, and the noble amphitheatre of mountains, which border the lake.

Lucern, originally subject to the House of Austria, was exposed to the incursions of Uri, Schwitz, and Underwalden, when those cantons had secured their independence. Her commerce to Italy was interrupted, and her citizens compelled to be continually under arms, in order to protect their territory from incessant depredations. Under these circumstances, the House of Austria, imprudently loading the citizens with exorbitant taxes, Lucern made her peace with the confederate cantons; and, expelling the

* Zug was the only one of the small cantons which did not send its contingent to the army, but made a show of resistance to the imposition of the new constitution. On the 29th of April Zug was invested by French troops, surrendered on the 30th, and on the 1st of May accepted the new constitution.

† See an account of Oswald, who was defeated and slain in 624, by Peada, King of the Mercians, in Pennant's *Tour to Wales*, vol. i. p. 258.

Austrian party, entered into a perpetual alliance with Uri, Schweitz, and Underwalden, and became a member of the Helvetic union.

The accession of Lucern gave additional credit and power to the confederacy, and enabled it to resist all the efforts of a great and implacable enemy. In 1386 Leopold Duke of Austria invaded the canton with a numerous army, when the combined troops gained a bloody victory at Sempach, in which Leopold lost his life. In the accounts of this battle, an instance of private valour is recorded, which would have done honour even to a Grecian or a Roman name, and only requires the pen of a Thucydides, or a Livy, to equal in fame the exploits of the most admired heroes of antiquity. The Austrian army, far superior in number, was drawn up in firm battalion, accoutred in heavy armour, and furnished with long pikes, which they presented before them. The Swiss troops were led to the attack in the form of a wedge, in order to open their way into the ranks of the enemy, and to break the solidity of the battalion. The Austrians nevertheless continued impenetrable, till Arnold de Winkelried rushed alone upon the enemy to certain death, and, seizing as many pikes as he could grasp, endeavoured to force through the ranks, but he was killed in the attempt. His patriotic valour, however, was not exerted in vain: it inflamed the Swiss with new courage, and taught the only method of penetrating into the battalion, which they at length effected, after the most desperate efforts.

Leopold himself might have escaped, when his troops first began to give way; but, with a magnanimity worthy of a better fate, he would not survive so ignominious a day, and, rushing among the troops of the enemy, was slain. In the arsenal are still preserved his armour, together with a large quantity of cords, with which, according to tradition, he intended to bind the citizens of Lucern. The keeper of the arsenal displayed them to us with the same kind of triumph, as the man who shews the Tower of London points out the chains taken on board of the Spanish armada, which Philip II. is said to have destined for the principal nobility of England.

The government of Lucern is entirely aristocratical, or rather oligarchical. The sovereign power resides in the Council of One Hundred, comprising the Senate, or Little Council. The Great Council is the nominal sovereign; but the whole power actually resides in the Senate, consisting of thirty-six members, who are formed into two divisions, exercising the office by rotation. The members of the Senate are neither confirmed by the Sovereign Council, nor by the citizens, but are only dependent upon themselves; the division which retires at the end of six months confirming that which comes into office. Besides the vacant places in the Senate being filled by its own body, the power remains in the possession of a few patrician families; and as the son generally succeeds his father, or the brother his brother, the senatorial dignity may be considered as hereditary.

The administration of the current affairs, the care of the police, the management of the finances, and the whole executive power, reside in the Senate, which sits constantly; whereas the Sovereign Council is assembled only upon important occasions. The Senate has cognizance of criminal causes; but, in case of capital condemnation, the Sovereign Council is convoked, in order to pronounce the sentence; a practice worthy of imitation! for the condemnation of a criminal cannot be too maturely weighed; and great solemnity used in pronouncing the sentence, must make a deep impression upon the minds of the people. In civil causes an appeal lies from the Senate to the Sovereign Council; but this must be a mere formality: as, in fact, it is an appeal from the senators in one court to the same senators in another. Indeed their influence over the Sovereign Council must necessarily be absolute; for they themselves constitute above a third of

that body, choose their own members, and confer the principal charges of government. They nominate also to the ecclesiastical benefices, which are very considerable; near two thirds of the revenues of the canton belonging to the clergy.

The chiefs of the republic are two Avoyers, chosen from the Senate by the Sovereign Council, and confirmed annually. In all elections, the relations of the candidates, to the third degree, are excluded from voting; and neither the father and the son, nor two brothers, can be members of the Senate at the same time. Excellent institutions, one should think, to prevent the too great influence of family connections! excellent indeed in theory, but useless in practice: this circumstance proves, that when the spirit of the constitution is oligarchical, all laws enacted for the purpose of counteracting the power of the nobles, are mere cyphers. In some few instances, however, the authority of the nobles is controlled; for, in declaring war and peace, forming new alliances, or imposing taxes, the citizens must be assembled, and give their consent*.

Lucern being the first in rank and power among the Catholic cantons, is the residence of the Pope's nuncio, and all affairs relative to religion are treated in the annual diet which assembles in this town, composed of the deputies of those cantons. The town contains scarcely three thousand inhabitants, has no manufactures of any consequence, and little commerce. Learning nowhere meets with less encouragement, and consequently is nowhere less cultivated. What a contrast to Zurich! Yet, under these disadvantages, a few persons have made no inconsiderable progress in literature. Among these the most conspicuous is M. Balthazar, member of the Senate, who possesses a library rich in books relative to the history of Switzerland, in which he is extremely conversant, and his publications already given to the world, and those now preparing for the press, prove that he knows how to use them. His works are, for the most

* Lucern, like Soleure, affords a striking example, that the subjects of an oligarchical state may be not only satisfied with the government from which they are excluded, but even averse to all innovation. Not all the cabals of the French agents, not all the clamours of the disaffected, not all the exaggerations of the grievances under which they were supposed to labour, could induce the people to think themselves oppressed. They rejected the proffered equality, and it was not without great opposition that the magistrates, rather than the people, on the 31st of January, declared themselves a provisional government, and announced their readiness to accept a democratical constitution. Yet such was the aversion of the people to the new order of things, that the ancient magistrates were invested with the provisional government, and the national delegates did not assemble independently of the provisional government till the 14th of March, when Bern had surrendered to the French arms.

During the progress of the French revolution, Lucern acted with great spirit, and was inclined to join in defence of her own independence, as well as in support of the Helvetic union.

In answer to a summons from Bern, the magistrates, on the 2d of March, replied: "We observe that the demands of General Brune, if acceded to, would endanger not only the liberties of Bern, but the independence of the Helvetic confederacy. We have therefore determined, with the unanimous approbation of the representatives of the people, that the regiment in the canton of Bern shall march wherever necessity requires, and that a second regiment shall speedily follow." On the 3d a declaration was sent to Zurich: "We and the people are unanimously resolved to sacrifice our lives and property in defence of liberty against foreign invasion. The alarm-bell will be instantly sounded; and we exhort you to adopt the same resolution: our religion, liberty, property, and every thing that is dear to us are in danger. We will shew ourselves worthy of our forefathers; like free people, we will either conquer or die. These are our resolutions; these are the resolutions of all our people." (Meister, p. ii. p. 8.) But it was now too late; Bern had already surrendered, and the troops of Lucern, disgusted with the insubordination of the Bernese, retreated to the defence of their own territory.

Notwithstanding the surrender of Bern and the desertion of Zurich, a numerous body of peasants demanded the re-establishment of the ancient government, and joined the troops of the small cantons, to resist the entrance of the French; and the whole canton did not acquiesce without much opposition and bloodshed. A corps of French, after a short investment, entered Lucern on the 30th of April, and reduced the people to unconditional submission.

Soon after this event, Lucern became the seat of the new Helvetic government.

part, in the German and Latin tongues ; they contain biographical anecdotes of several illustrious Swiss, elucidate various important parts in the general history of Switzerland, but more particularly relate to the canton of Lucern. His son, a member of the Great Council, deserves to be mentioned for his collection of English books, and the zeal with which he endeavours to propagate a knowledge of our literature. I have also no less satisfaction in adding, that, since my first expedition into these parts, science is more cultivated ; that the principles of toleration are better understood and more widely diffused, and that a literary society is established for the promotion of polite learning.

The population of the canton has considerably increased within this century ; a sure proof of a mild and equitable government. The inhabitants are principally engaged in agriculture. The southern parts of the canton are chiefly mountainous, and furnish for exportation cattle, hides, cheese, and butter. The northern district is fruitful in corn, which being more than sufficient for the consumption of the canton, there is a constant exportation from the weekly market held in the town, to which the inhabitants of the small cantons resort, for the purchase of that and other necessaries. The overplus for the supply of this market is drawn from Suabia and Alsace. This commerce, which, together with the passage of the merchandize for Italy, is the chief support of the town, might be exceedingly improved and augmented, considering its advantageous situation ; for the Reufs issues from the lake, passes through the town, and, having joined the Aar, falls into the Rhine.

The cathedral and the Jesuits church are the only public buildings worthy of observation ; but are overloaded with rich ornaments, and disgraced by bad paintings. In the cathedral is an organ of a fine tone, and extraordinary size : the centre pipe, as the priest assured us, is forty feet in length, near three in diameter, and weighs eleven hundred pounds. The bridges which skirt the town round the edge of the lake are the fashionable walks of the place, and remarkable for their length ; being covered at top, and open at the sides, they afford a constant view of this delightful and romantic country ; they are decorated with coarse paintings, representing the histories of the Old Testament, the battles of the Swiss, and the dance of Death.

On our arrival at Lucern we sent a letter of recommendation to General Pfiffer, a native of this town, and an officer in the French service. He received us immediately, with his usual civility, and shewed us his topographical representation of the most mountainous part of Switzerland, which well deserves the attention of the curious traveller. It is a model in relief, and what was finished in 1776 comprised about sixty square leagues, in the cantons of Lucern, Zug, Bern, Uri, Schweiz, and Unterwalden. The model was twelve feet long, and nine and a half broad.

The composition is principally a mastic of charcoal, lime, clay, a little pitch, with a thin coat of wax ; and is so hard as to be trod upon without receiving the least damage. The whole is painted with colours representing the objects as they exist in nature. It is worthy of particular observation, that not only the woods of oak, beech, pine, and other trees, are distinguished, but also the strata of the rocks marked ; each being shaped upon the spot, and formed with granite, gravel, calcareous stone, or such other natural substances as compose the original mountains. The plan is indeed so minutely exact as to comprise not only all the mountains, lakes, rivers, towns, villages, and forests ; but every cottage, every torrent, every bridge, every road, and even every path is distinctly and accurately represented.

General Pfiffer has already been employed in this work about ten years, with astonishing patience and assiduity ; he himself took the plans upon the spot, and laid down the elevations of the mountains in their respective proportions. In the prosecution
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of this laborious performance, he was twice arrested for a spy, and in the popular cantons frequently worked by moonlight, in order to avoid the jealousy of the peasants, who think their liberty would be endangered should an exact plan be taken of their country. Being obliged to remain some time upon the tops of the Alps, where no provision can be procured, he generally carries with him a few she-goats, whose milk supplies him with nourishment. Indeed his perseverance in surmounting the difficulties that have arisen in the course of this undertaking, is almost inconceivable. When he has finished any particular part, he sends for the peasants and *châsseurs* who reside near the spot, and bids them examine accurately each mountain whether it corresponds, as far as the smallness of the scale will admit, with its natural appearance; then, by frequently retouching, he corrects the deficiencies. He takes his elevations from the level of the lake of Lucern, which, according to Saussure, is about fourteen hundred and eight feet above the Mediterranean.

This model, exhibiting the most mountainous parts of Switzerland, conveys a sublime picture of immense Alps piled one upon another; as if the story of the Titans were realized, and they had succeeded (at least in one spot of the globe) in heaping Pelion upon Ossa, and Ossa upon Olympus. The General informed me, that the tops of the Alps which crossed Switzerland in the same line are nearly of the same level; or, in other words, that there are continued chains of mountains of the same elevation, rising in progression to the highest range, and from thence gradually descending towards Italy. He is exceedingly polite and affable to strangers, and ever ready to be of any service to travellers, in pointing out the best roads, and in acquainting them with the places most worthy of observation.

Near Lucern is Mount Pilate, formerly called Mons *Pileatus*, from the Latin word *pilea*, because its top is generally covered with a cloud or cap. This word has been corrupted into *Pilatus*, from which alteration a thousand ridiculous stories have been invented; among others, that Pontius Pilate, after having condemned our Saviour to death, was seized with remorse, made an excursion into Switzerland, and drowned himself in a lake at the top of the mountain. This corruption of a word, and the absurd legend fabricated from its alteration, will naturally remind you of several fables of similar absurdity, seriously related by the Greek writers; a circumstance which my very worthy and learned friend Mr. Bryant has so amply and ably discussed in his *Analysis of ancient Mythology*. I am, &c.

Having, in three successive visits to Lucern, observed the gradual progress of General Pfister's model, and in August 1786 seen it completed, I am enabled to add some particulars, partly from my own observation, and partly communicated by the ingenious artist himself.

This model is composed of a hundred and forty two compartments of different sizes and forms; they are respectively numbered; and the whole can be taken to pieces and united with almost as much ease (if we may compare great things with small) as the dissected maps, by which children are instructed in geography.

The lake of Lucern, nearly the centre of Switzerland, forms also the centre of the plan, which comprehends part of the circumjacent cantons of Zurich, Zug, Schweiz, Unterwalden, Lucern, and Bern, and a small portion of the mountains of Glarus. It comprehends a space of 18½ leagues* in length, and 11 in breadth; and the dimensions of the model being 20 feet† and a half in length, and 12 in breadth, 203½ square

* A league is equal to 2288 toises, or 13,728 French feet, or 14,643 English feet.

† French feet.
leagues

leagues are represented on a parallelogram of 2.46 feet, or about two English miles and $\frac{1}{4}$ by a square English foot. The highest point of the model from the level of the centre is about ten inches; and as the most elevated mountain represented therein rises 1475 toises, or 9:40 feet, above the lake of Lucern, at a gross calculation, the height of an inch in the model is equivalent to about 900 feet. And it is a matter of astonishment to observe the stupendous works of nature delineated with such perfect resemblance in so small a compass.

Though I received considerable satisfaction from the first view of this extraordinary performance; yet I again contemplated it with much more pleasure, and still greater astonishment, when I was able to trace many of my various expeditions, and to recognise its surprising accuracy.

The general began this elaborate work at the age of fifty, and though now in his seventieth year, continues his annual expeditions into the alps, with a spirit and ardour that would fatigue a much younger person. It is likewise no less entertaining than instructive, to hear him expatiate, with an agreeable vivacity, on the most interesting objects, which are observed on the model. He kindly supplied me with the following remarks, which I transcribe from my journal. According to a rough calculation, the height on which snow usually remains during summer, may be estimated at 1360 toises, or 8704 English feet, above the level of the sea; and on which it never melts, at 1448, or 9264 feet.

Among the phenomena of nature he mentioned the Rigi, an insulated mountain near the lake of Lucern, twenty-five miles in circumference, and rising to a perpendicular height of more than four thousand feet above the surface of the lake: it is entirely composed of gravel and pudding-stone, and must have been formed by the waters. The Rigi joins to a small ridge of sand-stone running towards Schweitz.

Mount Pilate offers a most singular curiosity. At the elevation of five thousand feet, and in the most perpendicular part, near the pasture of Brunlen, is observed, in the middle of a cavern hollowed in a black rock, a colossal statue, which appears to be of white stone. It is the figure of a man in drapery, leaning one elbow on a pedestal, with one leg crossed over the other, and so regularly formed, that it can scarcely be a *l'ſur nature*. This statue is called Dominic by the peasants, who frequently accost it from the only place in which it can be seen, and when their voices are re-echoed from the cavern, they say, in the simplicity of their hearts, "Dominic has answered us."

It is difficult to imagine by whom, or in what manner this statue could be placed in a situation, which has hitherto proved inaccessible to all who have endeavoured to approach it. About the beginning of the present century, one Huber, a native of Krientz, a neighbouring village, attempted to descend into the cavern by means of ropes let down from the summit of the rock; he succeeded so far as to gain a near view of this singular phenomenon, and was again drawn up in safety. On a second trial, as he was suspended in the air, and endeavoured to draw himself into the cavern by fixing a grapple to the statue, the cord broke, and he was dashed to pieces. Since that dreadful accident, no one has ventured to repeat the experiment from the same quarter. Another trial to penetrate to the statue was made in 1755, by General Pfiffer and eight persons, from a small opening on the opposite side of the mountain, in which the natives collect a white substance called *mondloch*, or cream of the moon. As this opening is supposed to communicate with the cavern, the general and his companions crept on their hands and knees, one behind the other, and winding in the bed of a small torrent, through several narrow passages, at length discovered the light of the sun through a remote chasm; but as the distance seemed very considerable, and as the fall

of a single stone might have obstructed their return, they thought it imprudent to venture any further, and retreated without effecting their purpose.

LETTER XXIV.—*Valley of Entlibuch.—Zoffingen.—Lake of Sempach.—Anniversary of the Battle.*

IN my first expedition to this country, I had no opportunity of visiting the interior parts of the canton of Lucern, which I afterwards traversed in 1785 and 1786.

On both these occasions I passed from Bern to Lucern, one time along the high road leading through Zoffingen, Surzee, and by the lake of Sempach; at the other through Langenau, the Emme-thal, and the valley of Entlibuch, a district which though not usually frequented by travellers, yet highly deserves their attention.

In the 13th century, Entlibuch was subject to the counts of Wolhausen, and came by purchase, in 1299, to the Emperor Albert. In the following century it was held as a fief from the House of Austria by several successive counts; till the natives grievously oppressed by Peter of Torrenberg, in 1386, threw themselves under the protection of Lucern. That republic continued to possess Entlibuch, as a feudal tenure under the House of Austria, until 1405; when the Archduke Frederic renounced all the rights of sovereignty.

For above a century and a half, the inhabitants, inflamed with a desire of independence, and excited by the example of popular cantons, frequently rose in arms, and attempted to establish a democracy; but without success. Their last insurrection broke out in 1653; since which time they have continued in a state of perfect tranquility, under the wise administration of Lucern; and have enjoyed, with contentment, the considerable privileges with which they are endowed*.

The bailliage of Entlibuch extends from the Emme-thal in the canton of Bern, to the bridge near Wertenstein, about fifteen miles in length, and nine in its greatest breadth; and contains 11,000 souls. It is governed by a bailif, who is always a senator of Lucern; he continues in office two years, and generally resides in that capital. The bailliage is generally divided into three districts; the Upper, or Eschlisimat; the Middle, or Shuepfen; the Lower, or Entlibuch: each of these has its separate courts of justice, from which an appeal lies to Lucern.

That part of the bailliage which I traversed, is a valley watered by several lively rivulets, winding for some way between two ridges of well-wooded hills, and abounding in picturesque scenery. Afterwards the country was undulating, and the road, which was narrow and rugged, continually ascended and descended through well-cultivated fields of pasture. I passed through several villages, of which the principal were Eschlisimat, Shuepfen, and Entlibuch, which takes its name from the rivulet Entle, and gives it to the whole district. These places are small; but the whole country is strewed with cottages, and seems a continued village. The inhabitants chiefly follow agriculture; they rear large quantities of horned cattle, sheep, goats, and swine; make and export cheese in great abundance. Though usually richer than the inhabitants in the other parts of the canton; yet they did not appear so well clothed, or to possess such neat cottages, as their neighbours in the Emme-thal.

The peasants of Entlibuch are much esteemed for their independent spirit, vigour, and strength; remarkable for keenness and vivacity, for great quickness in repartee,

* The peasants of Entlibuch were remarkable for their attachment to the government, and for their decided opposition to French principles, during the late revolution.

for a peculiarity of garb, and for many striking customs which distinguish them from the natives of the circumjacent districts. Of various usages, which escaped my notice during my short stay among them, I chanced to gain information of one custom, which reminds me of the *Fescennina licentia* mentioned by Horace, that prevailed among the Roman peasants. Two neighbouring parishes send a challenge to each other, and, at the conclusion of the carnival each dispatches a man, *bedizened* with flowers and shells, called *shrove-monday ambassador*: he rides to the neighbouring village, and reads or rather sings, two satirical compositions in verse. The one, a general satire against the parish, usually begins by celebrating a period of Swiss history accommodated to the circumstances of time and place, then draws a comparison between the two parishes, giving the preference to his own, either for the superior learning and piety of the priest, the wisdom and impartiality of the president, the industry and spirit of the men, the beauty and chastity of the women, or the education of the children. The second composition consists of a string of epigrams in ridicule of particular persons; recording any scandalous adventures, or ludicrous circumstances, which have happened since the last year. The poet finishes his harangue with expressing a wish, that on the next shrove-monday the inhabitants may improve, and not deserve such a severe reprimand.

At the conclusion of this lecture, which creates much laughter, the *mock ambassador* returns; and the men of the two parishes repair, with drums beating and colours flying, to an open place, called the *Field of Battle*, followed and encouraged by the inhabitants of their respective parishes. The two *armies* being drawn up in order of battle, the *combatants*, in imitation of the old Swiss custom, kneel, offer up a short prayer, and start up at the sound of the trumpet.

Having formed themselves into two columns of several ranks, they march arm in arm, with uniform step and military attitude; both the foremost lines meet in front, and jostle against each other, being supported and pushed forwards by the hinder files, frequently assisted by the women, until one *phalanx* is broken. The victorious party is dignified with the name of the *Swiss*, and those who gave way are called *Austrians*, in allusion to the ancient animosity between those two powers. The jurymen of the district are present as umpires, and to prevent any violent disputes and quarrels. After the rencounter both parties sit down to table, and the day is concluded with feasting. As these satirical compositions occasionally created much ill will between the neighbouring parishes, and the rencounters were attended with various accidents, the government of Lucern abolished the custom; but has lately permitted it to be revived, with certain restrictions calculated to prevent future mischief.

The valley of Entlibuch may be considered as one of those parts which unite the mild and cultivated with the wild and rugged scenery of Switzerland; its acclivities gradually ascend and terminate in Mount Pilate, whose barren top is seen towering above the fertile and well-wooded hills.

Quitting this valley, we crossed the Emme over a covered bridge, admired the romantic position of Wertenstein, a convent of Cordeliers, overhanging the perpendicular banks of the torrent, and passed through a very steep and rocky country to Malters, a small village within a league of the capital. Here being a considerable fair, I stopped and dined at the *table d'hôte*, in company with some gentlemen from Lucern. In walking through the fair, I observed several booths for the sale of artificial flowers, which were purchased by the country girls. With these flowers, and with four bows of ribbands, they ornament their hats, which they adjust obliquely, with a degree of rustic coquetry not unbecoming.

Another district of this canton is that part which I visited in 1786, along the high road leading from Bern to Lucern. I passed the night at Zoffingen, a small town in the canton of Bern. The inhabitants enjoy greater immunities than any other place in that canton; they have their own magistrates, and, what is peculiar, their own courts of justice, both civil and criminal, which decide in the last resort, without an appeal to Bern. A bailiff resides there; but his whole employment consists in collecting the tithes. The town contains about two thousand souls.

Near Zoffingen I entered the canton of Lucern, and passed through a narrow valley bounded by a chain of hills remarkable for the richness and variety of the hanging woods. As I proceeded, the valley expanded; I traversed a gently waving country, and descended to Surzee, a small neat town near the lake of Sempach. From thence I coasted the western side of that lake, a small but beautiful piece of water about three miles in length and one in breadth; the grounds on each side slope gently to the edge of the water, and are prettily chequered with wood. On the opposite banks of the lake, I observed the town of Sempach, celebrated for the battle which established the liberty of the Swiss, and which I have already mentioned in the preceding letter. The anniversary of that battle, which happened on the 9th of July, 1386, is still commemorated with great solemnity, both at Sempach and Lucern, and supplies a copious subject for many poems and ballads in the numerous collection of national songs.

On the anniversary, a large body of persons of all ranks assemble on the spot where the battle was fought; a priest ascends a pulpit erected in the open air, and delivers a thanksgiving sermon on the successful efforts of their ancestors on that happy day, which ensured to their country liberty and independence. At the conclusion of this sermon, another priest reads a description of the battle, and commemorates the names of those brave Swiss who gloriously sacrificed their lives in defence of their freedom. Having exhorted those who are present to pray for the souls of their countrymen, and of the enemies, who fell in that battle, they all repair instantly to a small chapel, where masses are sung for the souls of the deceased. During this service, the people, falling on their knees, pray for their glorious ancestors, either in the chapel, on the walls of which are painted the deeds of the Swiss who immortalized themselves in this conflict, or near four stone crosses which distinguish the place of combat.

LETTER XXV.—*The lake of Lucern.—Gersau.—Schweitz.—Origin of the Helvetic Confederacy.—William Tell.—Altdorf.*

THE Waldstätter See, or lake of the four cantons, is, from the sublimity as well as variety of scenery, perhaps the finest body of water in Switzerland. The upper branch, or the lake of Lucern, is in the form of a cross, the sides of which stretch from Küssnacht to Dallenwal, a small village near Stantz. It is bounded towards the town of Lucern by cultivated hills sloping gradually to the water, contrasted on the opposite side by an enormous mass of barren and craggy rocks. Mount Pilate rises boldly from the lake, and is perhaps one of the highest mountains in Switzerland, if estimated from its base, and not from the level of the sea*. According to General Pfiffer, its elevation above the lake is more than six thousand feet: nevertheless its height above the Medi-

* Soon after the French took possession of Lucern, General Brune erected, with great solemnity, the standard of liberty on the top of Mount Pilate; thus conferring on the Swiss the shadow, while he deprived them of the substance of freedom.

terranean is trifling, in comparison with that of the Alps we are going to visit; nor indeed does the snow continue all the year upon its summit.

Towards the end of this branch, the lake contracts into a narrow creek scarcely a mile in breadth; soon after again widens, and forms the second branch, or the lake of Schweitz; on the western side is the canton of Underwalden, on the eastern that of Schweitz. Here the mountains are more lofty, and infinitely varied; some covered to their very summits with the most lively verdure; others perpendicular and craggy; here forming vast amphitheatres of wood, there jutting into the water in bold promontories.

On the eastern side of this branch is the village of Gerisau, at the foot of the Rigi: it is the smallest republic in Europe. Its territory is about a league in breadth, and two in length; situated partly on a small neck of land at the edge of the lake, and partly lying upon the rapid declivity of the Rigi. It contains about 1200 inhabitants: they have their general assembly of burgeses, their Landammann, their council of regency, their courts of justice, and their militia. I was informed that there is not a single horse in the whole territory of the republic, as indeed might well be supposed; for the only way of arriving at the town is by water, excepting a narrow path down the steep sides of the mountain, which is almost impassable. Gerisau is entirely composed of scattered houses and cottages of a very neat and picturesque appearance; each dwelling is provided with a field or small garden. The inhabitants are much employed in preparing silk for the manufactures of Basle. This little Republic is under the protection of the four cantons, Lucern, Uri, Schweitz, and Underwalden; and in case of war furnishes its quota of men. To the ambitious politician, who judges of governments by extent of dominion and power, such a diminutive republic thrown into an obscure corner, and scarcely known out of its own contracted territory, must appear unworthy of notice; but the smallest spot of earth on which civil freedom flourishes, cannot fail to interest those who know the true value of liberty and independence, and are convinced that political happiness does not consist in great opulence and extensive empire.

Towards the end of this branch the lake forms a bay, in the midst of which lies the village of Brunnen*, celebrated for the treaty concluded in 1315, between Uri, Schweitz, and Underwalden, which gave birth to the Helvetic confederacy. Here I landed,

* On the 31st of April 1798, Brunnen was again distinguished, as the place where deputies from the cantons of Uri, Schweitz, Underwalden, and Glarus, unanimously determined to maintain their independence, and to resist the innovations of the French. Even after the subjugation of the other parts of Switzerland, these intrepid mountaineers defended themselves with such spirit, and made such havoc among the French forces, that General Schawembourg engaged by treaty to respect their territory, and accepted their promise to admit the new Helvetic constitution. The French, however, not satisfied with this partial submission, yet unwilling again to encounter the efforts of courage and despair, contrived to disunite the small cantons, and separately to complete their subjugation. They obtained from the diet of Arau a decree for imposing a civic oath of allegiance to the new constitution; but the cantons of Uri, Schweitz, Underwalden, and Zug, refused compliance. The Helvetic Directory having represented to them the danger of resistance, General Schawembourg accompanied this exhortation with a threat, that unless they complied, "he would instantly march his troops into the rebellious districts."

Their answer deserves to be recorded for its pathetic simplicity; "Receive, citizen general, from a people ever true to their engagements, who among their craggy mountains have no comfort but their religion and their liberty, whose only riches are their cattle; receive the sincere assurance that they will ever give the French republic every proof of their devotion compatible with their liberty and independence. Accept also, citizen general, our solemn promise never to take up arms against the great republic, and never to join its enemies. Our liberty is our only blessing; nor will we ever grasp our arms except to defend that liberty." This artless remonstrance had no effect; Uri, Schweitz, and Glarus, deeming all resistance unavailing, took the civic oath; and the lower part of Underwalden, which alone refused, was left to its fate. See the note at the end of the next chapter. Planta, p. 456.

and walked through an agreeable and fertile plain, laid out in meadows, and planted with fruit trees, to Schweitz, which stands on the slope of a hill, at the bottom of two high, sharp, and rugged rocks, called the *Schweitzer-Flaken*. Its position is extremely agreeable. The church, which is a large magnificent building, stands in the centre of the place; near it the houses are contiguous; but in the other part are prettily dispersed about the gentle acclivities, in the midst of lawns and meadows, and sheltered by groves of trees. The principal object of curiosity in Schweitz is a complete collection of the celebrated Hetlinger's medals, possessed by his nephew. This collection, which he inherited from his uncle, is very valuable, the medals being all of the finest impressions, and several extremely rare. From these medals M. de Mechel published his much-esteemed engravings, to which he has prefixed a life of the artist, who was born in the canton of Schweitz, on the 28th of March 1691, and died in 1771, in a very advanced age.

Having re-embarked at Brunnen, we soon entered the third branch, or the lake of Uri; the scenery of which is so grand, that its impression will never be erased from my mind. Imagine to yourself a deep and narrow lake about nine miles in length, bordered on both sides with rocks uncommonly wild and romantic, and, for the most part, perpendicular; with forests of beech and pine growing down their sides to the very edge of the water. On the right hand upon our first entrance, a detached piece of rock, at a small distance from the shore, engaged our attention; it is wholly composed of stones of the size and shape of bricks, so as to appear quite artificial. The same kind of natural masonry may be observed in the lofty cliffs which impend over this lake not far from Brunnen. It rises to about sixty feet in height; is covered with underwood and shrubs, and reminded me of those crags that shoot up in the Fall of the Rhine near Schaffhausen: but here the lake was as smooth as crystal, and the silent solemn gloom which reigned in this place was not less awful and affecting than the tremendous roaring of the cataract. Somewhat further, upon the highest point of the Seelisberg, we observed a small chapel that seemed inaccessible; and below it, the little village of Gruti, near which the three heroes of Switzerland are said to have taken reciprocal oaths of fidelity, when they planned the famous revolution.

On the opposite side appears the chapel of William Tell, erected in honour of that hero, upon the very spot where he leaped from the boat in which he was conveying as a prisoner to Küssnacht. It is built upon a rock projecting into the lake under a hanging wood: a situation amid scenes so strikingly awful, as must strongly affect even the most dull and torpid imagination! On the inside of this chapel, the several actions of William Tell are coarsely painted. While we were viewing them, we observed the countenances of our watermen glistening with exultation, as they related, with much spirit and sensibility, the cruelties of Gessler, governor of Uri, and the intrepid behaviour of their glorious deliverer. Indeed I have frequently remarked with pleasure the national enthusiasm which generally prevails in this country, and greatly admired the fire and animation with which the people discourse of those famous men among their ancestors; to whom they are indebted for that happy state of independence they now enjoy. This laudable spirit is continually supported and encouraged by the numerous statues, and other memorials, of the antient Swiss heroes, common in every town and village. Among these, Tell is the most distinguished, and seems to be the peculiar favourite of the common people; the reason is obvious; for his story partakes greatly of the marvellous.

A few years ago a treatise, entitled *Fable Danoise*, was published at Bern; in which the author calls in question the history of William Tell. Though his arguments in general

neral are by no means conclusive, yet he mentions two circumstances which, if true, are convincing proofs, that much fiction is interwoven with the whole account. He asserts that the incident of Tell's shooting the apple from the head of his son is not recorded in any of the contemporary historians, although they give the minutest accounts of the governor's tyranny; and that the first writer who takes notice of it is Etterlin of Lucern, who lived in the latter end of the fifteenth century, near two hundred years after the fact is supposed to have happened. Besides, a story of the same kind is related in the Danish annals by Saxo Grammaticus, with scarcely any difference but that of names: Harold King of Denmark supplies the place of the governor of Uri, Tocco that of William Tell; and this event which is said to have happened in 965, is attended also with nearly the same incidents, as those recorded in the Swiss accounts*. It is far from being a necessary consequence, that because the authenticity of the story concerning the apple is liable to some doubts, *therefore* the whole tradition relating to Tell is fabulous. Neither is it a proof against the reality of a fact, that it is not mentioned by contemporary historians. The general history of William Tell is repeatedly celebrated in old German songs, so remarkable for their antient dialect and simplicity, as almost to raise the deeds they celebrate above all reasonable suspicion: to this may be added, the constant tradition of the country, together with two chapels erected some centuries ago, in memory of his exploits.

The three cantons were so much offended with the author for doubting the exploits of their antient hero, that they presented a remonstrance to the sovereign council of Bern, and the pamphlet was publicly burnt at Uri. In this instance their national prejudices (if they really deserve that name) become, in some measure, meritorious and respectable.

Landing at Fluellen, I had an opportunity of observing that the cross-bow is still much used, as I saw several very young boys, each with that instrument in his hand. Observing a butt at a small distance from the place, I told them, that those who hit the mark should receive a penny for their dexterity. Upon this intimation, three boys took aim successively, two of whom touched the very centre of the butt, and obtained the prize: but the third missing, I made him shoot till he hit the mark; which after two or three trials, he performed.

From Fluellen we walked to Altdorf, the capital burgh of the canton of Uri, situated in a narrow vale almost entirely surrounded by stupendous mountains. It contains several neat houses; the tops whereof are covered with large stones, in order to prevent the roofs being carried away by the hurricanes frequent in these mountainous countries.

When the greater part of Helvetia was subject to the empire, the inhabitants of Uri, Schweiz, and Underwalden, had long enjoyed the most considerable privileges, particularly the right of being governed by their own magistrates: the clergy and many of the nobles, indeed, had fiefs and subjects in those respective territories; but the bulk of the people formed several communities almost independent. During the twelfth century, various disputes between the three cantons and the emperors united them more firmly, and they were accustomed, every ten years, to renew formally their alliance. Such was their situation at the death of Frederic II. in 1250. From this period, or soon afterwards, commenced the interregnum in the empire: during that time of

* As Saxo Grammaticus is an author but little known, and the passage in question is exceedingly curious, the reader will find it inserted at the end of this volume. It is but justice to add, that some persons question the authenticity of this passage, and suppose it to be spurious.

anarchy and confusion, the nobles and bishops endeavouring to extend their power, and to encroach upon the privileges of the people, Uri, Schwitz, and Underwalden, threw themselves under the protection of Rhodolph of Hapsburg, who, in 1273, being chosen Emperor, terminated the interregnum. Rodolph received a small revenue from these cantons, and appointed a governor, who had cognizance in all criminal causes, but expressly confirmed the rights and privileges of the people.

Rhodolph, sometime after his accession to the imperial throne, listened to the ambitious schemes of his son Albert, who was desirous to form Helvetia into a duchy. For this purpose the Emperor purchased the domains of several abbeys, and other considerable fiefs in Switzerland, as well in the canton of Schwitz as in the neighbouring territories.

The three cantons alarmed at this great increase of power, obtained a confirmation of their privileges, which, upon the death of Rodolph, was renewed by his successor Adolphus of Nassau. But when Albert was elected emperor, he refused to ratify their rights, and, in order totally to subdue the people, placed over them two governors, who committed many flagitious acts of tyranny and oppression.

Under these circumstances Werner de Staflach of Schwitz, Walther Furst of Uri, and Arnold de Melchthal of Underwalden, planned the famous revolution which took place January 13, 138, and restored liberty to the three cantons; and Albert, as he was preparing to attack them, was assassinated by his nephew John of Hapsburg*. In 1315, Leopold Duke of Austria marched against the confederate cantons, at the head of twenty thousand troops, and, endeavouring to force his way into Schwitz at the pass of Morgarten, received a total defeat from thirteen hundred Swiss posted upon the mountains. If we may believe contemporary historians, the Swiss lost but fourteen men in this memorable engagement, which insured their independence. In the same year, the three cantons contracted a perpetual alliance, which was ratified at Brunnen, and is the grand foundation of the Helvetic Confederacy. Such were the feeble beginnings of a league, since become so formidable by the accession of ten cantons, and by the additional strength of its numerous allies; and it is remarkable, that Switzerland is the only country which, on the one side, has confined the limits of the German empire, and, on the other, has set bounds to the French monarchy†.

The name of Schweitzerland, or Switzerland, which originally comprehended only the three cantons of Uri, Schwitz, and Underwalden, was afterwards extended to all Helvetia. It derived that appellation either from the canton of Schwitz, as having particularly distinguished itself in the revolution of 1308, and also at the battle of Morgarten; or because the Austrians called all the inhabitants of these mountainous parts by the general denomination of Schweitzers.

Switzerland was the rock on which the House of Austria split, during more than a century. Blinded with resentment against their former subjects, and anxious to recover their lost domains, the several dukes led in person considerable armies to subdue a nation, whose spirit was unconquerable, and to obtain possession of a country, which was easily defended against the most numerous troops. They neglected several opportunities of aggrandizing themselves in other parts, and, slighting what was more feasible, bent their whole efforts to acquire what in its very nature was unattainable. The consequence of this mistaken policy was, a succession of defeats, attended with a prodigious expence, and

* See Letter 14.

† The reader will please to recollect that this letter was written before the fatal progress of the French revolution.

the loss of their bravest troops, until at length, convinced of their error, they totally relinquished an attempt, in which they had expended so much fruitless blood and treasure. But although several emperors of that House occasionally made alliances with the Swiss cantons, yet it was not till the treaty of Westphalia that their independence was fully and finally acknowledged by Ferdinand III. and the whole empire.

The government of Uri and Schwitz is entirely democratical, and nearly the same. The supreme power resides in the people at large, who are divided into several communities, from which are chosen the councils of regency. In the *Lands-gemeind*, or general assembly, the Landamman, and the principal magistrates, are elected; and every burgher, at the age of fourteen, in the cantons of Uri and Underwalden, and of fifteen in Schwitz, consist each of sixty members, and reside at the capital burghs; in these councils the executive power is vested, and from their bodies the principal magistrates are chosen.

These two cantons contain, including their subjects, about fifty thousand souls, and in case of necessity could furnish above twelve thousand militia. All the Catholic cantons enjoy considerable subsidies from France. Every burgher, at the age of fourteen, in Uri, receives annually about six livres, or five shillings: the Landamman and the magistrates more in proportion. The canton of Schwitz being for some time discontented with France, withdrew its troops from that service: but this year (1776) the matter has been accommodated; and the king pays annually to every male child of a burgher four livres, commencing from the time of his birth.

The same kind of soil, and the same productions, are common to the two cantons: the whole country being rugged and mountainous, consists chiefly of pasture, produces little corn, and has no vines. We cannot but observe with astonishment, to what a degree of fertility the natives have improved a land, naturally barren, and for which they fought with as much zeal and intrepidity, as if they contended for the richest plains of Sicily or Asia Minor. In these little democratical states, sumptuary laws are not necessary; for they scarcely know what luxury is. The purity, or (as some perhaps would call it) the austerity of morals, which still prevails among these people, cannot easily be imagined by the inhabitants of opulent cities; and I cannot reflect on that affectionate patriotism which so strongly attaches them to their country, without calling to mind that beautiful description of the Swiss peasant, in Goldsmith's Traveller.

“ Dear is that shed to which his soul conforms,
 “ And dear that hill which lifts him to the storms :
 “ And as a child, when fearing sounds molest,
 “ Clings close and closer to the mother's breast ;
 “ So the loud torrent, and the whirlwind's roar,
 “ But bind him to his native mountains more.”

Every step we now advance, we tread, as it were, upon sacred ground; monuments continually occur of those memorable battles, by which the Swiss rescued themselves from oppression, and secured the enjoyment of their invaluable freedom. I am now indeed in the very centre of civil liberty; would I could add of religious too! but the church of Rome is here exclusively established. It must be acknowledged, however, that this intolerant spirit is not wholly confined to the Catholic cantons; for, in the Protestant districts, Calvinism is alone admitted: thus a nation, who prides herself upon her freedom, denies the free exercise of religion to every other sect except that which predominates. Is not this striking at the first principle, and most valuable privilege, of genuine liberty?

Long

Long as my letter already is, I cannot forbear mentioning a peculiar custom observed in some of these democratical states: every person who is chosen for a bailliage, or lucrative office, is obliged to pay a certain stipulated sum into the public fund. This practice is attended with one ill consequence at least; as the successful candidate is in some measure authorized to stretch his prerogatives, in order to swell the profits of his charge. Accordingly, it is a general remark, that in the common baillies, the bailiffs appointed by the popular cantons are more apt to be guilty of exactions than those of the aristocratical republics. I am, &c.

LETTER XXVI.—*Canton of Underwalden.—Sarne.—Saxelen.—Tomb and Character of Nicholas de Flue.—Stantz.—Engelberg.—Passage over the Suren Alps to Altdorf.*

INSTEAD of proceeding, as in my former tour, from Lucern to Altdorf by water, I made an agreeable excursion to Sarne, Saxelen, and Stantz, in the canton of Underwalden, visited the abbey of Engelberg, and traversed the Suren Alps to Altdorf.

Having dispatched my baggage by water to Altdorf, I walked, in company with M. Meyer, member of the Great Council of Lucern, through a pleasant plain, lying between Mount Pilate and an opposite ridge of hills, to Winke, a village situated on an inlet of the lake of Lucern. There I took boat, and rowing across the inlet, disembarked near Alpnach, in the canton of Underwalden, and continued along a foot-way, which winds through enclosures of rich pasture-land, browsed by numerous herds of fine cattle, and prettily chequered with scattered cottages. Having crossed a small river, I arrived at Sarne, the capital burgh of that division of the canton called Oberwalden, wherein the *Land rath*, or supreme court of judicature, assembles for the purpose of deciding civil and criminal processes. This tribunal is composed of fifty-eight judges, who are chosen by the people, and continue in office for life. In criminal affairs of any notoriety, each of these is empowered to bring into court two individuals; and this tribunal, thus consisting of a hundred and seventy-four members, assembles in a large open hall in the town-house, and passes final sentence.

At Sarne I embarked upon the Aa, and ascending its stream entered the lake of Sarne, a piece of water about three miles long, and one and a half broad, pleasantly enclosed between the mountains, and its rising borders richly variegated with pastures and trees. I landed at Saxelen, which stands on its western shore; a neat village much frequented, as the native place of the celebrated saint and patriot Nicholas de Flue, to whose honour a church has been lately erected. The interior is ornamented in a pleasing style of architecture. Ten elegant columns of black marble support the roof; they are about twenty-four feet in height, and many of them of a single piece. They were hewn out of a quarry in the Melchthal, about nine miles from Saxelen, and dragged from thence by the peasants, who voluntarily performed this task, which they considered as an act of religious duty: a laborious enterprise, to convey such heavy burdens down steep precipices and over pathless rocks, where they could neither be assisted by horses nor oxen!

Under a glass case in the midst of the church are deposited the bones of this favourite object of national worship, fantastically ornamented, according to the Roman Catholic custom, with gold and precious stones. His real burial-place is still to be seen in a small adjoining chapel; it is a simple grave-stone, on which his figure is coarsely carved in stone, the work of the age in which he lived. A little above this antient monument is placed another grave-stone, bearing also his figure, executed in later times, less rude, but

but still of coarse workmanship. On entering this chapel I observed numerous pilgrims of both sexes, who were kneeling before his tomb, and praying with the greatest fervency; many, in the ardour of devotion, threw themselves between the two grave-stones, and stretching themselves upon the most antient figure, repeatedly kissed and embraced it.

Nicholas de Flue, this object of national enthusiasm, was born at Saxelen in 1417. Descended from an antient family, he signalized himself in defence of his country, and particularly during the war which the Swiss supported against Sigismund Archduke of Austria. He was no less remarkable for humanity than valour. To his countrymen preparing to pillage and burn the convent of St. Margaret near Diessenhofen, he exclaimed, "If God grants you the victory over your enemies, use it with moderation, and spare those edifices which are consecrated to him." This remonstrance was attended with effect, and the convent was saved from destruction. To the most excellent qualities of the heart and understanding, to great political sagacity, he added the exterior graces of figure, dignity of character, and the most winning affability. Raised by his countrymen to high employments in the state, he repeatedly declined the office of landamman from motives of delicacy, because he disapproved the principles of the governing party. At length, hurried away by his detestation of evil, and a zeal for monkish devotion, he quitted his family in the fiftieth year of his age, and, retiring from the world in a fit of gloomy superstition, turned hermit. The place of his retreat was at Ranft, a few miles from Saxelen, where he built an hermitage and a small chapel, and practised all the severities required by that austere mode of life with the strictest observance.

But the flame of patriotism, although smothered in his breast by an ill-directed zeal for mistaken duties, was not extinguished; and he was the happy instrument in rescuing Switzerland from the impending horrors of civil discord. At the conclusion of the war with Charles the Bold, Friburgh and Soleure having contracted an alliance with Zurich, Bern, and Lucern, the treaty was considered by Uri, Schweiz, Underwalden, Zug, and Glarus, as a breach of the former union. After various disputes and fruitless conferences, the deputies of the eight confederate cantons assembled in 1481 at Stantz, in order to compromise the differences.

Both sides were so heated with mutual animosities, that the deputies were on the point of separating without effecting a reconciliation, and a civil war appeared inevitable. In this crisis of affairs, de Flue no sooner heard of the public dissensions, than his patriotism prevailed over his superstition; and he quitted his unprofitable hermitage to exert those active and public virtues, the lowest of which singly outweighs whole years of useless mortification. Accordingly this extraordinary man, though in the 64th year of his age, travelled during the night, and arrived at Stantz on the very morning in which the deputies were preparing for their departure. He earnestly conjured them to remain; and having prevailed upon them once more to assemble, he so forcibly represented the destructive consequences of disunion, that they chose him arbiter of the dispute. By his sole mediation all differences were amicably adjusted, and by his advice Friburgh and Soleure were instantly received into the Helvetic Confederacy: such was the effect of his persuasive and conciliatory eloquence! Having thus happily composed the public dissensions, he returned to his hermitage, where he died, in 1487, in the 70th year of his age, regretted and esteemed by all Switzerland. Such a general opinion of his extreme piety prevailed among his contemporaries, that the bigotry of those times ascribed to him an exemption from the common wants of human nature.

In the register of the church of Saxelen, the following notice is inscribed for 1485, the year antecedent to his death : " In 1417, Nicholas de Flue, a saint, was born in the parish of Saxelen ; who afterwards retired into a desert called Ranft, where God sustained him during eighteen years, without eating or drinking for a long time, namely, when this was written ; and he is now in good estate, and of holy life."

On his tomb is inscribed : " Nicholas de Flue quitted his wife and children to go into the desert : he served God nineteen years and a half without taking any sustenance. He died in 1487."

This frivolous epitaph strongly marks the bigotted spirit of that dark age in which it was composed : the narrow-minded author, totally overlooking the patriot in the hermit, saw nothing so truly meritorious in the life of the deceased, as the suppression of those social energies which dignify human nature, in order to practise the debasing austerities of a superstitious religionist. He ought to have inscribed, " To the memory of Nicholas de Flue, who quitted his hermitage to appear in the world ; who restored peace and harmony to the republics of Switzerland, and who served God by serving his country."

From Saxelen we intended to visit Ranft, de Flue's hermitage, and from thence to proceed down the Melchthal and over the mountains to Engelberg ; but as the evening was already beginning to close, we durst not venture along so difficult a passage, which would have employed us at least five hours ; we thought it therefore most prudent to continue our route towards Stantz. We followed the footpaths, which wind agreeably, sometimes through forests, sometimes over the fields and meadows ; and passed through a fertile but wilder and more romantic part of the canton, than that which we traversed in the morning. We continued for some way at the foot of the Stantzberg, crossed a small plain formerly a lake, in which staples for mooring vessels are occasionally discovered ; and in about three hours after our departure from Saxelen arrived at Stantz, in the dusk of the evening.

About three miles from Stantz is a small wood called the *Kern-wald*, which we traversed in our route from Saxelen ; it would not be worthy of mention, did it not separate the canton into two divisions, called *Oberwald* and *Underwald* *. Formerly the whole canton was under the same general administration ; but disagreements arising between the inhabitants of the two districts, they have since formed two republics, and have each their *lands-gemeind*, or general assembly, their landamman, and council of regency : for the management of external affairs there is a joint council, chosen equally by the two divisions ; at the Helvetic Diet they send but one deputy, and regulate their vote by mutual consent. Stantz is the seat of civil and criminal judicature, and it is worthy of remark, that every male of the age of thirty is permitted to give his vote for the acquittance or condemnation of a criminal.

Stantz, the capital of Underwalden, is situated in a beautiful plain of pasture, about two or three miles in breadth, at the foot of the Stantzberg, and at a little distance from the lake of Lucern. The town and environs, delightfully sprinkled with numerous cottages, are extremely populous, containing, perhaps, not less than five thousand souls. The church is a tolerably handsome building, and is decorated in the inside with ten black marble pillars of large dimensions, but not so beautiful as those at Saxelen. The women in these parts dress their heads in a singular manner, and extremely

* Above the wood, and Below the wood ; *wald* in German signifying a wood.

unbecoming : they wear black-beaver cocked hats, similar to those of the men, with black ears to their caps, which almost conceal their hair *.

The next morning the abbot of Engelberg, previously informed of our intended visit, politely sent horses to Stantz ; and we rode through a fertile valley, enclosed between the Stantzberg and a chain of hills, until we arrived at Graffen-ort, a small villa belonging to the abbot, about two leagues from Stantz. Here we began to ascend along a road winding by the side of a steep precipice, and through "*unfanned forests*," of beech intermingled with poplar, mountain ash, Spanish chestnuts, and pines, the torrent 'Aa' impetuously foaming in a stony channel, and forming a succession of cataracts. The wild horrors of the circumjacent rocks, the incessant roaring of the waters, and the solitary gloom of the forest, reminded me of Gray's beautiful Ode on the Grande Chartreuse, in which he describes similar scenes with a sublimity and truth which every person of taste, who travels through these magnificent regions, must feel and admire :

*Per invias rupes, fera per juga,
Clivosque præruptos, sonantes
Inter aquas, nemorumque noctem.*

* This tranquil and happy district became the scene of unexampled carnage, and the handful of natives who ventured alone to resist the aggression of the French were almost wholly exterminated. The inhabitants of Schwitz and Unterwalden, being required to take the civic oath, sent deputies to Lucern, and afterwards to Aarau, who appealed to the stipulations of the treaty granted by General Schawembourg. They were received with insult and indignity, and returned with the following answer : " You, as well as the other cantons, must take the oath ; and you must further give up to us, alive or dead, nine of your principal leaders, and among them three of your clergy. Many hundreds more shall share the same fate. The consequences of your obstinacy shall be held out as an example to the whole world."

Intimidated by this threat, Schwitz and the upper district of Unterwalden complied with the injunction ; but the message of the Swiss Directory having been read to a general assembly of the lower district, excited indignation and horror ; and they unanimously resolved to be buried in the ruins of their country rather than surrender their fellow-citizens in so dishonourable a manner. About 1500 took up arms, and, without the smallest hope of foreign assistance, prepared to resist the whole force of the French, and to die rather than survive their expiring liberty. Having entrenched themselves on the borders of the lake, and at the entrance of the valley of Stantz, with their women and children, they firmly waited the attack. The French advanced to the assault in separate columns, some crossing the lake in armed vessels, and others marching over the mountains.

On the 3d of September hostilities commenced ; the French were repulsed in different onsets ; on the 9th two vessels being sunk with 500 men, the French were intimidated, and refused to proceed, until a party, encouraged by the promises, and urged by the threats of Schawembourg, disembarked and forced the entrenchments. At the same time two other columns landed at different points, and the corps rushing from the mountains, fell upon their rear. The small but heroic band, shut up in a narrow defile, and surrounded by a force ten times their number, sustained the assault with unparalleled courage.

" Then began," says an eye-witness of this desperate conflict, " the battle and the carnage. Our rustic heroes fire on every side, fight foot to foot, rush among the enemies' ranks, slay and are slain. These mountaineers were seen pressing French officers to death in their nervous arms ; old men, women, and children, roused by the noble example, and catching the enthusiasm of their sons, husbands, and fathers, appeared throwing themselves into the midst of the French battalions, arming themselves with clubs, pikes, pieces of muskets, nay the very limbs of the human body, strewing the ground with carcases, and falling with the satisfaction of having fought to maintain their native land free from a foreign yoke."

The French, exasperated at this incredible resistance, put to the sword not only their opponents on the field of battle, but involved all whom they met in indiscriminate slaughter, and the valley from one end to the other became a prey to pillage, flames, and carnage.

Two hundred natives of Schwitz, hearing the cannonade, were ashamed of having deserted their brethren, and hastily arming themselves, forced the post which the French had established at Brunnen, and towards the end of the day approaching Stantz, saw the conflagration, which showed the fatal event of the action. They devoted themselves to revenge the fate of their countrymen, and after exterminating above 600 of their enemies, fell on the field of battle.

This was the last conflict of expiring liberty in Switzerland ; had the united Swiss acted with equal spirit, the country would yet have been free.

The fall of Unterwald, by an eye-witness, Mallet, vol. ii. p. 40.

Issuing from the dark forest, we descended for a little way, and unanimously broke into an exclamation of surprise and delight, as we suddenly looked down upon a picturesque plain of an oval shape beautifully wooded, watered by several lively streams, enclosed within a circle of gentle hills, and terminated by a majestic amphitheatre of "*cloud-capt alps*;" toward the extremity of this plain the abbey, a large quadrangular building of stone, is situated at the foot of the *Engelberg*, or Mountain of *Angels*, from which the whole district takes its name. On alighting from our horses, the abbot politely received and conducted us into a large saloon, where soon afterwards dinner was served with all the plenty of feudal times, and all the comforts of the present age. The company at table consisted of the abbot, five or six benedictines, ourselves, and our servants, who, according to the custom of the place, sat down to the same hospitable board with their masters. This intermixture of society, the politeness of the worthy abbot, and the facetious cheerfulness of one among the fathers, rendered the repast as agreeable as it was uncommon. After dinner we visited the library, which contains about ten thousand volumes; and, among many rare editions, above two hundred printed in the fifteenth century. I noticed a much larger collection of modern historical and miscellaneous works than are usually found within the walls of a monastery, which does honour to the taste of the abbot, and proves him a warm friend to polite literature.

The weather being fine and clear I strayed about the environs, admiring the scattered hamlets, the beautiful tufts of wood, and the lively streams which murmur through the plain: of these, one called the Melt-bach, which I observed issuing copiously from the ground, begins to flow on the first melting of the snow in the month of May, and ceases towards the end of September, and the Griefen-bach, that rises at the foot of Mount Blake, runs only from mid-day to the setting sun. Several other torrents, that pour down from the neighbouring glaciers, and numerous springs that burst from the ground near the abbey, help to supply the Aa, which rushes from the Suren Alps, and, swelled with these tributary waters, hastens to throw itself into the lake of Lucern. The amphitheatre of cloud-capt mountains is formed by the Melkleberg, the Arniberg, the Blakeberg, the Spitze-stock, the Suren Alps with their brown peaks boldly rising from the bosom of the snow, the Engelberg towering in naked majesty, and, the most elevated and most beautiful in the whole chain, Mount Titlis, supporting on its top an immense glacier.

About seven in the afternoon we sat down to supper; in the midst of the repast we were suddenly struck with an awful thunder-storm, which, though it could not be called the music of the spheres, or such as, according to the legends of the abbey, was performed on the top of the Engelberg, by a choir of angels, at the consecration of the convent; yet produced a most sublime effect, when re-echoed by the surrounding mountains.

The abbot, chosen by a majority of sixteen benedictines, who compose the chapter, is sovereign lord over the land of Engelberg, a tract of country about sixty miles in circumference, and under the protection of Lucern, Uri, Schweiz, and Underwalden. The small plain in which the abbey is situated is the only habitable part of this district, and contains fifteen hundred souls; the remaining portion, being entirely mountainous, affords in summer a retreat to numerous herds of cattle. The abbot, to whom we were indebted for so polite a reception, is Leodigar Saltzman, a native of Lucern, who, since his elevation to his present dignity, has been a kind and indulgent master: finding many of his subjects extremely poor and indolent, he has excited them to industry; and in order to assist them during the winter months, when agriculture is suspended, employs them in winding silk, which he imports from Italy. He possesses very considerable
power,

power, which renders him nearly absoluté: in all criminal cases he arrests and imprisons; appoints the person who examines; can order, if he thinks it necessary, the infliction of torture, and can pardon or mitigate the sentence given by the tribunal of the country, called *landsgerecht*. In civil causes his influence is very considerable; he appoints, from twelve candidates selected by the people, the seven judges, who, in conjunction with the *thalamman* and *statthalter*, form the *landsgerecht*, which decides in the first resort: he can also displace them if he pleases, and absolutely nominates all the judges of the *geistlichen-gerecht*, or ecclesiastical court, which receives appeals from the decisions of the former tribunal. His power is restricted in the following instances. If he is engaged in a law-suit with an individual, the award of the country tribunal is final, and if with the whole community, the question is decided by the four cantons of Lucern, Uri, Schwitz, and Unterwalden.

His revenues amount to about 5000l., and are derived partly from tithes of certain estates in the free bailliages of Switzerland, and from a few feudal rights, but principally from the exportation of cheese. Beside those which are made on the pastures belonging to the abbey, he purchases others from the peasants of his little territory, and disposes of the whole on his own account. About eighteen hundred cows, including the cattle of the convent, are possessed by the natives of Engelberg, and annually supply milk for about 10,000 cheeses, each weighing from 25 to 50 pounds, and selling, on an average, for 15 florins, or 11 5s. per hundred weight: and it may be calculated that the abbot circulates annually to the value of 4000l. This revenue, however, cannot be considered as his own private property; for he pays the current expences of the abbey*.

Several

* On the 1st of April 1798 the respectable abbot resigned his sovereignty, in a letter to Mengaud, the French resident in Switzerland.

"Citizen Minister,—We fulfil a duty highly agreeable to us, in forwarding to you the enclosed act, in which we voluntarily re-establish the people of the valley of Engelberg in their sovereign rites. We flatter ourselves that you will acknowledge in this conduct the purity of our intentions, and our extreme eagerness to render ourselves worthy of the friendship of the French republic. We hope, Citizen Minister, that you will make our sentiments known to the Directory of the Great Nation, and recommend us to the continuance of its esteem and kindness. Health and respect!

(Signed)

LEONEGARIUS Abbot, and
MAURICE MULLER Prior."

Mengaud returned this insulting answer, which announced the dissolution of their community:

"I have read with pleasure your letter of the 1st of April, in which you announce the re-establishment of the people of the valley of Engelberg in their sovereign rights. I commend this natural restitution of antiquated usurpations, eternally contrary to those imprescriptible rights of nature, to the enjoyment of which men are indiscriminately called. This acknowledgment on your part of a sacred and unalienable principle, is without doubt of great value; and under this point of view, citizen monks, you are commendable; but be still more so. Do not wait till philosophy expels you from the asylum of indolence and inutility. Quit the livery of superstition, return to society, and display virtues sufficient to bury in oblivion those years which have been consecrated to monastic nullity." *Moniteur*, 8th Floreal.

The respectable abbot of Engelberg died of chagrin, soon after he received the insulting letter of Mengaud. The unfeeling conduct of the French agent, and the virtues of the venerable abbot, are described in a recent publication; and the truth of the account must forcibly strike the reader, as the author cannot be suspected of partiality to the aristocracy and clergy of Switzerland.

"With infinite concern I read that part of the letter which speaks of the death of the abbot of Engelberg. It seems this venerable priest did not long survive the violent attack of the commissary, Mengaud. * * *

"The image of the venerable abbot for ever fills my imagination. His letter to the French commissary was so unlike the message of a sovereign prince, of a neutral and independent power, that it was framed to have flattered the vanity, and softened the violence, of the most intrepid revolutionist. Alas! he had been no enemy to the French revolution!—he loved mankind too well to condemn an experiment in its favour: to promote general happiness was the sole purpose of his life, and, while the abbot of Engelberg existed, there

Several ineffectual expeditions have been made towards attaining the summit of Mount Titlis, the most elevated mountain in these parts, and perhaps scarcely inferior to the Schreckhorn and Jungfrauhorn; it was for a long time considered as inaccessible: but, as tradition reported, that in the year 1739 three men had ascended, Freygrabend, a native of Engelberg, and physician to the abbot, a few days after my departure from the convent, succeeded in a similar attempt. The following account of this expedition is extracted from a German letter, written by the physician himself to a friend at Lucern:

"Early in the morning on the 14th of September, the weather being fine and clear, I set out with eleven companions, among whom were Jerom. Dopler and Conrad Stocher, two friars of the convent. About two in the morning, after ascending through Gerichne, and Unter and Ober-laub, we reached, at break of day, the summit of the Laubergrat. Here we enjoyed a fine view over the canton of Underwalden, the lake and canton of Lucern, the free baillages, and the canton of Zug. Having taken some refreshment, and reposed ourselves a quarter of an hour, we put on our crampons, and pursued our route; eager, like the giants of old, to scale the steep sides of Mount Faulblatten. We continued about an hour along the piked ridge of this mountain, tottering by the side of tremendous precipices, and twice climbing an ascent almost perpendicular. We could not observe any trace of the smallest vegetation. Having gained the highest point of the Faulblatten, we arrived at a glacier, which being fortunately covered with fresh snow, rendered the ice less slippery than usual.

"Hitherto our course was attended with some danger, but from hence we ascended and reached with little difficulty the top of the Titlis, called *Nollen*. But here we were obliged to cross a deep chasm, and to mount the sides of the ice, which were as perpendicular as a wall, by forming steps for our feet with the iron spikes of our poles: below us was a valley of ice about sixteen miles in length, descending rapidly towards Oberhasli. It was now about ten in the morning, and the sun was extremely bright. Having walked a few paces, the prospect was on all sides open and unbounded. This sublime, yet dreary scene, though it surpasses all description, made an impression on my mind which I shall never forget.

"Here the painter and poet would find ample and endless employment, if the colours of the painter and the conceptions of the poet could resist the effects of the extreme cold. The first objects which caught our attention, were the Alps of the Vallais, Bern, and Savoy, with their glaciers and vallies of ice; a majestic and tremendous scene. Among numerous mountains which rose before us, Mont-Blanc, though at some distance, reared its head above the rest; near us towered the Schreckhorn, Wetterhorn, and Jungfrauhorn, but less elevated in appearance than the point on which we stood. Below us we observed a valley of ice about two miles in breadth, and of such immense length, that one extremity seemed to join Mont-Blanc, and the other to be closed

there was at least one sovereign prince who lived only for his people; who for them had corrected the frugality of nature; who had formed a paradise on the icy confines of the world; who had excluded the moral winter of the soul, and, while the tempest raged without, had opened a spring of happiness in every heart; * * * * * —who had not only scattered blessings in profusion, but made his people participants of his power." * * *

"The gentle spirit of the good old abbot was not proof against such a rude compound of ignorance and inhumanity. He appeared fitted for the enjoyment of a long and virtuous old age, but has sunk prematurely to the tomb! The remembrance of his virtues will be for ever embalmed in my heart; he sleeps secure from farther insult; but his convent becomes the prey of revolutionary inquisitors." — *Sketches of the State of Manners and Opinions in the French Republic at the Close of the Eighteenth Century.*

by the Titlis. To the east, the Rothstock, the Plangen, and the mountains of Uri, neither so wild nor so elevated as those to the south; and towards the north-west, the eye rested itself over the less dreary and more cultivated parts of Switzerland, as far as the borders of Alsace and Suabia. Immediately below us we noticed the abbey, and heard the sound of several mortars, which the abbot ordered to be fired as a signal that we were also seen: by means of a small telescope I observed the fire and smoke, and five minutes elapsed before the sound reached us, not in a straight direction, but re-echoed between the surrounding rocks. We had proposed to kindle a fire, and to let off some hand-grenades, but the cold prevented us from striking fire. Not being able to support its extremity more than three quarters of an hour, although the sun shone very bright, and we kept ourselves in continual motion, we placed a black flag on the highest point.

“We were as fortunate in descending as in mounting. We came to the Unter-Titlis at half past eleven; to the Laubergrat at one, where we again took some refreshment, and having let off our grenades, reached the abbey at five in the afternoon. We felt no permanent inconvenience from this expedition; our faces were only swelled, and our skins peeled, from the reflection of the sun, and for some hours after my return to Engelberg, I lost my sight and my hearing, both which however I soon recovered. Undoubtedly the Titlis is the highest mountain in Switzerland, excepting Mont-Blanc, to which it is not much inferior.”

It is to be regretted, that this expedition was only a mere effort of curiosity, and that the ingenious physician carried with him neither thermometer nor barometer. His assertion that the Titlis is higher than any mountain in Switzerland, will, for this reason, and without farther proofs, admit of much doubt; its elevation, though very considerable, must be greatly inferior to that of Mont-Blanc, as will appear by considering that the expedition from the plain of Engelberg to the top of Titlis was performed in eight hours; whereas Dr. Paccard and James Balma employed fifteen in attaining the summit of Mont-Blanc; and the place from which they took their departure is probably much higher above the level of the sea than the valley of Engelberg.

August 25.

TRAVELLERS, in going from Engelberg to Altdorf, usually return to Stantz or Buochs, embark on the lake of Lucern, and proceed the rest of the way by water; but as I had already visited those places, I preferred following the route across the mountains. The morning being obscure and rainy, we were detained till nine o'clock, when the weather clearing up I set out, in company with Messrs. Balthazar and Meyer, of Lucern. Passing through the plain of Engelberg, we admired on our left a fine waterfall, which precipitates itself from Mount Engel, and in about a league arrived at a cottage belonging to the abbey, where we found two peasants employed in making cheese, and regaled ourselves with some excellent cream. From this point we mounted gently by the side of the Aa, leaving on the right the high Suren Alps, whose pointed tops occasionally burst forth amid the clouds and vapours; about a mile from the cottage we quitted the abbot's horses, walked up a gradual ascent, passed a superb cataract of the Aa, and reached a chapel noted in these parts for a small bell, which, according to tradition, was the gift of a French traveller. Near this chapel we observed a hut, which is in the canton of Uri, from whence the ascent was steeper, but not difficult; we crossed many drifts of snow, and were incommoded by a keen wind and frequent showers of sleet, hail, and rain. At length, in about four hours after our departure from the abbey, we reached a cross planted on the highest point; from this elevation we should have

have enjoyed a most superb view, greatly admired by travellers, on one side towards Uri and the chain of the St. Gothard, and on the other towards Engelberg, and the lake of Lucern, had not the weather totally obscured the prospect. From this point the Titlis is much extolled for its beautiful and majestic appearance.

From hence we descended the Enkeberg into a most barren region, amid a harvest of pointed rocks, and over numerous drifts of snow, and fallen fragments of stone, intermixed with small patches of russet herbage, which contributed to increase the dreariness of the scene. Our descent continued above an hour and an half, along a bare slippery rock of slate, or in the bed of torrents, or over large masses of ice and snow, when we observed several huts scattered in a small plain. From their first appearance we concluded that we should presently reach them, but the precipices were so steep, the paths so rugged, and the distance so much greater than we at first imagined, that it employed us above an hour and an half.

The little valley, in which these huts are situated, is called *Wald-nacht Alp*, contains a small quantity of underwood, and feeds a hundred and thirty-three cows, beside a few sheep, goats, and hogs. The peasants employed in tending the cattle and making cheese, usually arrive on the 20th of June, and remain about a hundred days. The owner of the hut in which we dried our clothes, makes every day during that period two cheeses of twenty-five pounds each, from the milk of eighteen cows.

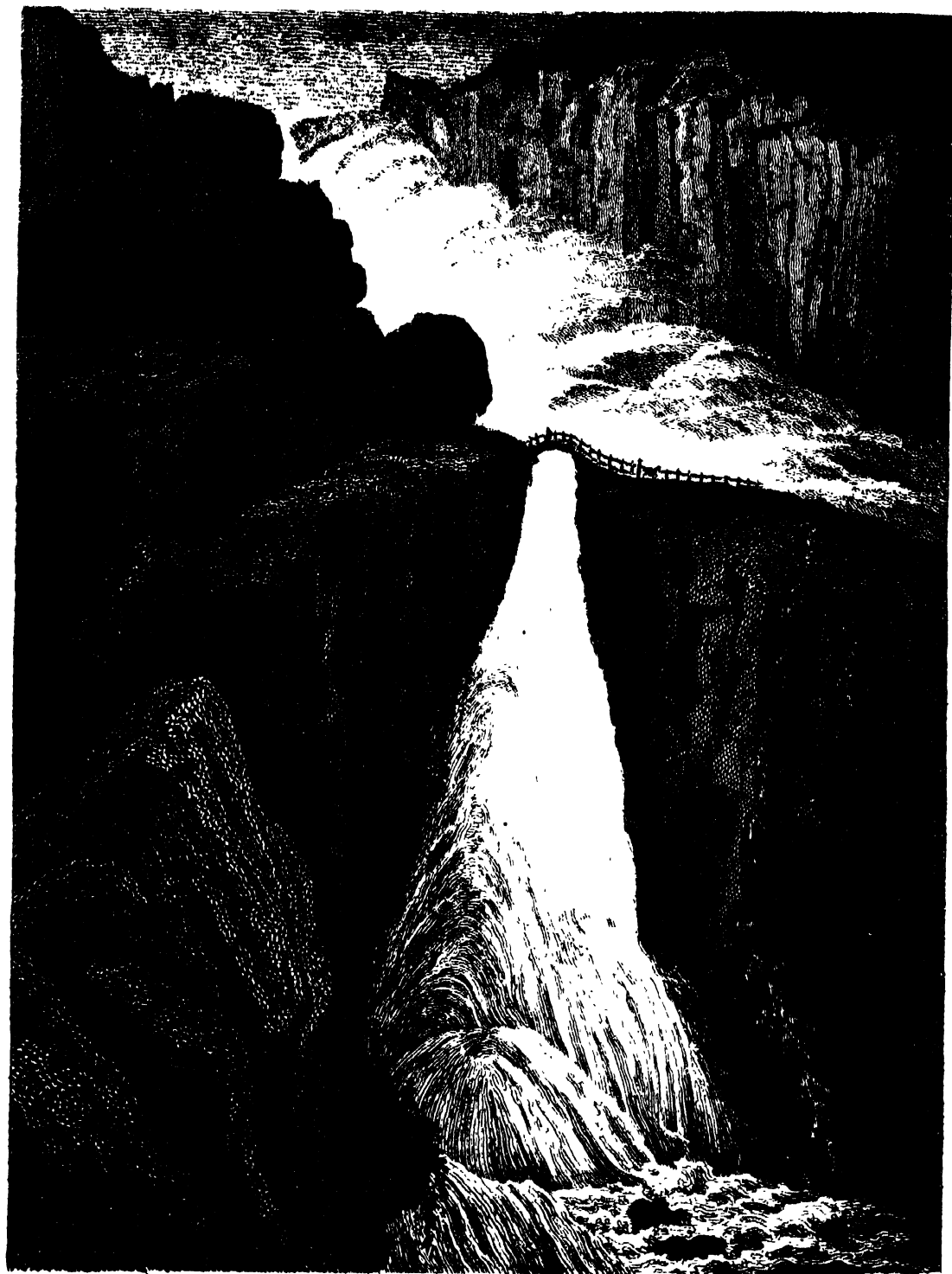
Having taken some refreshment, and recovered our fatigue, we continued along the valley through some groves of poplars and firs, and at its furthest extremity came to a single cottage seated on an eminence, the first house on this side which is habitable in winter. A little further we had a prospect of the town and environs of Altdorf; the fertile vale of Schackeren, which, though a very steep ascent, yet from this elevation seemed a level plain; the lake of Uri, which looked like a small rivulet; and the distant mountains reaching beyond the St. Gothard. The descent, through rich fields and pastures, was extremely steep and tedious, as the grass was rendered slippery by the rain, and we did not arrive at Altdorf till seven in the evening, wet and exceedingly fatigued, but much pleased with our expedition. This passage from Engelberg to Altdorf is estimated at seven leagues. A *chasseur* may perform it in four hours; a traveller accustomed to mountains, in six; and a person unused to such fatigue, will require eight or ten hours.

LETTER XXVII.—*Valley of Schoellenen.—Devil's Bridge.—Valley of Urseren.—Valley and Mountain of St. Gothard.—Sources of the Tefina and Reufs.*

St. Gothard, Aug. 9.

SWITZERLAND is a most delightful country, and merits the particular observation of the traveller, as well for the diversity of the governments, as for the wonderful beauties of nature; but the impositions of the innkeepers, and the difficulty of procuring horses*, are inevitable taxes for the enjoyment of these its delights. These little in-

* I would recommend to all travellers who traverse the canton of Uri in order to visit the Alps, either to hire horses at Lucern, or to bespeak them against their arrival at Altdorf. If we fortunately had not taken the latter precaution, we should have found no less difficulty in procuring horses in 1785 than in 1776; notwithstanding all the good offices of our landlord at the Black Lion, who, knowing that I was the author of Letters on Switzerland, was extremely anxious to wipe away certain aspersions which, in the beginning of this letter, seem to glance at his native town. The two Mr. Cliffords, whom we met at Engelberg, and who, to our great satisfaction, accompanied us in our tour as far as Geneva, were obliged to pursue their journey on foot, not being able to procure more than one horse, which was appropriated to their baggage.



Mr. J. W. Smith, Jr., Secretary

conveniencies, however, should be borne with patience and good humour; nor will I trouble you with any splenetic complaints of those unpleasant circumstances which must occur to all travellers.

Quitting Altdorf, we passed at first through a fertile plain of pasture, in which the inhabitants were employed in mowing the second crop of hay, and in about nine miles began ascending. The road winds continually along the steep sides of the mountains, and the Reufs sometimes appeared several hundred yards below us; here rushing a considerable way through a forest of pines, there falling in cascades, and losing itself in the valley. We crossed it several times, over bridges of a single arch, and beheld it tumbling under our feet, in channels which it had forced through the solid rock; innumerable torrents roaring down the sides of the mountains, which were sometimes bare, sometimes finely wooded, with here and there some fantastic trees clothing the sides of the precipice, and half obscuring the river. The darkness and solitude of the forests, the occasional liveliness and variety of the verdure, immense fragments of rock blended with enormous masses of ice; crags of an astonishing height piled upon one another, and shutting in the vale;—such are the sublime and magnificent scenes with which this romantic country abounds.

Near Wassen is the valley of Meyen; the torrent that dashes through it, and falls into the Reufs, forms a series of grand cataracts, which the traveller may enjoy by venturing to the edge of the precipice, and supporting himself against an impending pine that overlooks the gulf.

We set out this morning early from Wassen, a small village where we passed the night; and continued advancing for some way up a rugged ascent, through the same wild and beautiful tract of country which I have just attempted to describe. We could scarcely walk a hundred yards without crossing several torrents, that rolled with violence from the tops of the mountains. This being one of the great passes into Italy, we met many pack-horses laden with merchandize; and as the road in particular parts is very narrow, it required some dexterity in the horses to pass one another without jostling. These roads, impending over precipices, cannot fail of inspiring terror to travellers, who are unaccustomed to them; more particularly as the mules and horses do not keep in the middle of the track, but continue crossing from the side of the mountain towards the edge of an abyss, then turn assant abruptly; thus forming, if I may so express myself, a constant zig-zag.

Thus far the country appeared to be tolerably well peopled; we passed through several villages situated towards the bottom and less narrow part of the valley; the sides of the mountains were occasionally strewed with cottages, covered with forests, or enriched with pastures. Still continuing to ascend, the scenery beyond Wassen suddenly changing, became more wild and desert; there were no traces of trees, except here and there a stubbed pine; the rocks were bare, craggy, and impending; not the least sign of any habitation, and scarcely a blade of grass to be seen. We then came to a bridge thrown across a deep chasm over the Reufs, which formed a considerable cataract down the shagged sides of the mountain, and over immense fragments of rock which it has undermined in its course. This bridge is called *Teufels-brück*, or the Devil's Bridge. As we stood upon the bridge contemplating the fall and listening to the roar of the cataract, we were covered with a spray, which the river threw up to a considerable height. These are sublime scenes of horror, of which those who have not been spectators can form no perfect idea: they defy the representations of painting or poetry *.

Not

* Many travellers have been disappointed on the first view of the Devil's bridge. It ought therefore to be remarked, that the bridge itself, though of difficult execution, is a pleasing object, and not so stupendous

Not far from this desolate landscape the road led us into the *Urner-loch*, a subterraneous passage cut through a rock of granite *, which opened at the opposite entrance into the serene and cultivated valley of Urseren: the objects that presented themselves were a village backed by a high mountain, and a wood of pines; peasants at work in the fields, cattle feeding in the meadows, and the river, which was lately all foam and agitation, now flowed silently and smoothly; while the sun, which had been hidden from us in the deep abyss, shone in its full splendor. In general, there is a regular gradation from extreme wildness to high cultivation; but here the transition was abrupt, and the change instantaneous: it was like the lifting up of a curtain, and had all the effect of enchantment.

In this valley are four villages, Urseren, Hopital, Realp, and Zundorf; forming a small republic under the protection of Uri. The territory of this little commonwealth is about nine miles in length and two in breadth, and contains thirteen hundred souls. The people elect, in their general assembly, their *Talamman* or chief, as also some other magistrates; and there is a permanent council of fifteen members, who assemble in each of the different districts. The inhabitants enjoy great privileges, but are not absolutely independent: for, in civil causes, an appeal lies from their courts of justice to Altdorf, and in criminal proceedings, two deputies from the government of Uri are present at the trial, and deliver to the judges of the valley the opinion of the Council of Altdorf.

Notwithstanding the considerable elevation of this valley, and the coldness of the air even at this season of the year, it produces excellent pasture. The only wood therein is the small plantation of pines above the village of Urseren, which is preserved with uncommon care and reverence, and a small quantity of underwood and stubbed willows, that feather the banks of the Reufs. In the adjacent country there are several mines of crystal, of which a considerable quantity is exported. The language of the natives is a kind of provincial German, but almost every person speaks Italian.

as many others in Switzerland; and that it is the wild and majestic scenery that astonishes and exalts the beholder. This bridge was destroyed by the French in 1799, and the torrent was passed by Marshal Suwarof and the Russians, when he made his famous retreat.

Perhaps the reader will not be displeased to contemplate Suwarof's picture of this sublime scenery, in his dispatch to the Emperor of Russia, dated Feldkirch, Oct. 3, O. S.

"Our army left the frontiers of Italy regretted by all the inhabitants, but with the glory of having liberated that country, and traversed a chain of dreadful mountains. Here St. Gothard, the colossus of mountains, surrounded by clouds impregnated with thunder, presents itself to our view; there the Vogelberg, striving, as it were, to eclipse the former in terrific grandeur! All dangers, all obstacles are surmounted; and, amidst the combat of elements, the enemy cannot withstand the brave army which suddenly appears on this new theatre; every where they are driven back. Your Imperial Majesty's troops penetrated the dark mountain cavern of Urseren, and made themselves masters of the bridge which joins two mountains, and justly bears the name of Devil's bridge. Though the enemy destroyed it, the progress of the victorious troops was not impeded; boards were tied together with the officers' scarfs, and along that bridge they threw themselves from the highest precipices into tremendous abysses, fell in with the enemy, and defeated them wherever they could reach them. It now remained for our troops to climb Mount Winter, the summit of which is covered with everlasting snow, and whose naked rocks surpass every other in steepness. Almost buried in mud, they were obliged to ascend through cataracts rolling down with dreadful impetuosity, hurling with irresistible force huge fragments of rock, and masses of snow and clay, by which numbers of men and horses were impelled down the gaping caverns, where some found their graves, and others escaped with the greatest difficulty. It is beyond the powers of language to paint this awful spectacle of nature in all its horrors."

* This passage was hollowed in 1707, by Peter Moretini, a native of Val-Maggia, at the expence of the inhabitants in the valley of Urseren. It is nine feet in breadth, ten in height, and two hundred and twenty in length.

The valley of Urseren is a small plain surrounded by high mountains, covered with pasture terminating in barren rocks, in many parts capped with snow. Near the middle of this beautiful plain we turned to the left, and entered the valley of St. Gothard, filled with the ruins of broken mountains; the Reufs, a most rapid and vehement torrent, bursting through it; on each side immense shattered blocks of granite, of a beautiful greyish colour (and of which the summits of these Alps are composed,) confusedly piled together.

The valley of St. Gothard, though not so wild as that of Schoellenen, is yet exceedingly dreary. It does not contain a single shed, or produce a single tree; and the sides of the mountains are barely sprinkled with short herbage. The extremity is closed by the still ruder and naked rocks of the Feudo, supporting in its hollow vast masses of snow, while the superb glacier of the Locendro towers above the adjacent heights. It is about two leagues from Urseren to this place; but the road, considering the ruggedness of the rocks and the steepness of the ascent is not inconvenient; it is from nine to twelve feet broad, and almost as well paved as the streets of London.

We are now lodged at a house inhabited by two Italian friars from the convent of Capuchins at Milan, who receive all strangers that pass through these inhospitable regions. One of the friars is absent, so that I am in possession of his bed-chamber: it is a snug little room, where a man may sleep very well without being an anchorite, and which, after the fatigues of our journey, I enjoy with a satisfaction much too sensible to envy the luxury of a palace. Our host has just supplied us with a dinner, consisting of delicious trout, with which the neighbouring lake of Locendro abounds, eggs and milk, together with excellent butter and cheese; both made in this dreary spot.

Upon our arrival we were rejoiced to find a good fire; the weather being so exceedingly cold, that I, who was only clad in a thin camlet coat, entered the house half frozen. It is singular to find, at the distance of only a day's journey, such a difference in the climate: the air is absolutely in a freezing state; and I just now passed by a boy at work, who was blowing his fingers to warm them. If the cold is so piercing in the midst of summer, how intolerable must it prove in December? The snow begins to fall the latter end of September; and the lakes about this spot are frozen during eight months in the year.

I am just returned from visiting the sources of the Tesino and the Reufs, which rise within a short distance of each other. The Tesino has three principal sources in the chain of the St. Gothard. The first is a spring near the foot of the Prosa, entirely covered with frozen snow, or, when that is melted, with fallen fragments of rock, through which it trickles in numerous currents, that unite and help to form a small lake; from this piece of water it communicates with two other lakes, and issues in a more considerable torrent.

The lake of La Sella, in another part of the eastern chain, supplies the second source; the third is furnished by the snows of Mount Feudo. These three sources uniting with another branch, that flows from the Furca through the valley of Bedreto, form one great torrent, which takes its course towards the south, enters the lake of Locarno, and, traversing part of the Milanese, falls into the Po.

The source of the Reufs is the lake of Locendro, an oblong piece of water about three miles in circumference, stretching between the mountains of Petina and Locendro, and almost entirely supplied by the immense glaciers which crown the summit of the Locendro. The stream issuing from this lake rushes down the valley of St. Gothard, and, joining in the vale of Urseren the two branches which come from the Furca on one

side, and from the Grison mountains on the other, flows towards the north into the lake of Lucern, and from thence throws itself into the Aar.

Within a day's journey is the source of the Rhine in the Grisons, and about the distance of three leagues, that of the Rhone in the Furca, which mountain we shall pass to-morrow. We are still surrounded by high rugged rocks, and inaccessible glaciers, so that our view is much confined; though I walked above a league, towards Italy, in hopes of enjoying an extensive prospect over that delightful country, yet I could observe nothing but rocks, precipices, and torrents.

I am at this instant near * seven thousand feet perpendicular above the level of the sea: no inconsiderable height, most certainly. Nevertheless, if I give credit to those who assert, that this mountain is the loftiest point in Europe, I should raise myself in idea above twice as high; but I have reason to think, that this opinion is founded upon false calculations. Mikeli, who measured the principal mountains of Switzerland, but who is very inaccurate in his calculations, considers the St. Gothard as the highest; and he estimates its elevation above the sea at 17,600 feet. But, so far from being of that height, it is by no means the highest ground of Switzerland; and there is probably not one mountain either in Europe, Asia, or Africa of that altitude. According to General Pfiffer, the summit of the St. Gothard rises above the sea 9,075 feet; an elevation considerably less than that of *Ætna* and *Teneriff*, and still more inferior to several mountains in the great chain of Alps, to which we are bending our course.

August 1785.

On my entrance into the little plain in which the friar's house is situated, although the air was exceedingly keen, I did not experience that piercing cold which I felt in 1776; but the day was fine, and the sun shone unclouded. When we arrived at the house the friar was saying mass to an audience of about twenty persons, many of whom come from the neighbouring Alps, where they are tending cattle, to divine service on Sundays and festivals. At the conclusion of mass, the friar, whose name is Francis, immediately recollected, and received me with great satisfaction. He is well known to all travellers that pass this way, having already inhabited this dreary spot above twenty years. Since my last expedition, he has considerably enlarged his house, and rendered it extremely commodious. It contains at present, besides several sitting-rooms, kitchens, and an apartment for the family, nine small but neat bed-chambers appropriated to travellers. The expence of this addition has already amounted to £300, part of which he collected in various districts of Switzerland; an equal sum is required to discharge the present debts, and to make the further necessary improvements, which he hopes to procure by another collection.

Friar Francis obligingly accompanied me about the environs, and favoured me with the following particulars, in addition to my former account: The chain of mountains which immediately surrounds this place takes the general appellation of St. Gothard, and its particular parts are called by different names; of which the principal are the Salla, Prosa, and Surecha, to the east; the Feudo, the Petina, and the Locendro, to the west; to the north, the Ursino; and to the south, the ridge of naked and piked rocks of the Val-Maggia. Of these the Feudo is the most elevated: its highest point rises more than 2000 feet above the plain in which stands the friar's house, and requires

* According to M. de Saussure, the spot upon which the house of the Capuchin friars is built, is 1,061 French toises above the sea.

three hours to reach it. There are six pastures on the neighbouring heights, on which are fed two hundred cows, a hundred and fifty goats, and thirty horses.

On examining at mid-day Reaumur's thermometer, placed in the shade in a northern aspect, I was much surprised to find that the mercury stood at $6\frac{6}{10}$ above freezing point, or 46 of Fahrenheit, although the northern wind was exceedingly keen, and, if I had judged from my own feelings, I should have concluded that the air was in a freezing state.

About four years ago the Elector of Bavaria sent to the friar several barometers, thermometers, and other meteorological instruments, which enabled him to note the variations of the atmosphere, and to form a series of observations. In the most extreme cold he ever experienced in these parts, the mercury in Reaumur's thermometer fell to 19 degrees below freezing point, or—10 of Fahrenheit.

In 1784. Greatest heat on the 13th of September, it stood at 13, or $61\frac{1}{2}$ of Fahrenheit. Greatest cold at—17, or $8\frac{1}{2}$ of Fahrenheit.

M. de Luc's barometer never rose higher than	-	22°	3'	1"
or fell lower than	-	20	9	9

It appeared from observations made in 1784, that the average state of the thermometer and barometer was as follows :

Thermometer.		Barometer.	
Nine in the morning, }	$2\frac{1}{10}$ of Reaumur, or 28 of Fahrenheit	-	21° 9' 2"
Midday —	0 — or 32 —	-	21 9 3
Nine in the afternoon, }	1—3 lines, — or $29\frac{1}{2}$ —	-	21 9 4

In the same year it snowed during some part of 118 days ; rained 78 ; cloudy 293 ; tempest, with hail, 12 ; thunder and lightning 22 ; rainbow 4. Halos round the sun 2, and round the moon 2. Serene days 87.

LETTER XXVIII.—*Passage and Glacier of the Furca.—Source of the Rhone.*

Munster in the Vallais, Aug. 11, 1776.

I ARRIVED here late yesterday evening, and so fatigued that I was incapable of writing, but I am this morning refreshed with a comfortable sleep, and in spirits to continue my journal. I took leave of our host at St. Gothard, and walked alone, for about two leagues, down the valley. I frequently quit my party, and either go on before, or loiter behind, that I may enjoy uninterrupted, and with a sort of melancholy pleasure, these sublime exhibitions of Nature in her most awful and tremendous forms. I entered the valley of Urseren at Hospital, and was again struck with the strong contrast between that cultivated vale and the desolate country I had just quitted. At the same time I enjoyed a most sublime view of the high chain that encloses the vale of Urseren, and particularly noticed the towering rocks which stand in the country of the Grisons, one of them supporting on its rugged top a glacier, from which the Rhine takes its rise. We passed through the small village of Zundorf, and stopped at Realp, to procure some refreshment, and bait our horses. From thence we soon reached the extremity of the valley of Urseren ; where we began ascending a path so narrow, steep, and rugged, that I suspected we had missed our way, as it seemed almost impracticable for horses ; upon

their arrival however I mounted, being fatigued with my walk from St. Gothard to Realp. It was a single path, up a steep mountain, where a horse, with some dexterity, could just put one leg before the other: this path sometimes lay upon the edge of a precipice, very craggy and stony; where, if my steed had happened to stumble, we must both inevitably have perished. But as I knew he was no more inclined than myself to roll down the precipice, I flung the bridle upon his mane, and entrusted myself to his direction. Nor had I any reason to repent of my confidence; for, in the bad and dangerous parts, he never once tripped; where it was smoother and safer, indeed, he knew he had a licence to be more careless.

We came at length to a torrent, through which we drove our horses with some difficulty, and crossed it by means of a plank; a little farther we arrived at another, deeper and more violent, over which there was no bridge, nor the least appearance of any track on the other side; it was a considerable distance from any habitation, and our guide unacquainted with the road. After some observation we discovered that the mountain had lately fallen down, and overwhelmed the path, leaving only a very faint narrow track on the side of the precipice, along which my companions scrambled upon their hands and knees. While I was crossing the torrent on horseback, I heard a scream, and, turning round, saw one of our servants seized with a panic on the very edge of the precipice, and vehemently exclaiming, that he could neither get forwards or backwards. Nevertheless, with some assistance, he passed over, declaring, at the same time, that he would take care never to put himself again in a similar situation. We now regained a kind of path, but so extremely steep that we prudently dismounted, and suffered the horses to make their own way. With much difficulty, and, after crossing several large drifts of ice and snow, the torrents at the same time rumbling under our feet, we reached, by a very steep ascent, the summit of the Furca. A number of rugged and forked rocks piled one above another have occasioned, it is said, this chain to be called the *Furca*. The country immediately around was as dreary and desolate as the valley of Schoellenen; all vegetation seemed to have ceased; lower down, the mountains were covered with herbage and sweet-scented flowers; near us, but higher on the left, between the Blaueberg and the Lunguetz, lay a large body of ice, from which issued a torrent*, probably one of the first sources of the Rhone. In a word, the majestic objects that presented themselves to our view, formed a most astonishing and sublime scene.

From hence we descended broken rocks and craggy precipices for a considerable way. By this time I was so much fatigued, that I was glad to sit down and take some refreshment, consisting of bread, cheese, and hard eggs, the only provision we could procure at Realp. We were seated by a stream of clear water rippling down the side of a mountain so exceedingly steep, that our humble repast would have rolled away if it had not been supported. In full view before us was the glacier of the Furca; an immense valley of ice, extending at least three miles in length and near a mile in breadth, between the Gletcherberg and the Satzberg, rocks more shagged, if possible, than any of the neighbouring mountains: it stretches from their feet, fills up the intervening chasm, and reaches almost to their summits. The rays of the sun caused it to glisten like crystal, while the blue tints reflected on the surface appeared inexpressibly beautiful. The ice seemed to break in several parts, as we heard some loud and deep cracks; the torrent

* I was informed by a friar of Realp, who travels much in these parts, that this torrent, which is turbid in summer, is in winter as transparent as the clearest spring; and that when the accumulation of the snow prevents it from flowing under the glacier of the Furca, it then forms a lake, runs over the ice, and rushes to the Vallais with the waters it receives in its course.



of the Rhone at the same time roaring beneath. That river is chiefly formed by this glacier: the small torrent, which bursts from the body of ice between the Blaueberg and the Lungnetz, being joined by several streams, loses itself under the vast arch of ice that forms the bottom of the glacier, issues considerably augmented, and is the great and principal source from whence the Rhone takes its rise. The range of mountains on which we were sitting was overspread with underwood and herbage, and some cattle were feeding along the heights: a fine contrast to the sterility of the opposite chain, which appeared for some extent nothing but bare rock, except where it was covered with ice and frozen snow.

Having finished our banquet, and reposed ourselves for a short time, in contemplation of the scene, we descended to the bottom of the glacier, where we admired the Rhone breaking forth with violence from the bed of ice, near the huge fragments of a fallen rock. We now followed the course of that river, and proceeded down a mountain so steep, that several parts of the road winding along its sides were frequently parallel to each other. The scenery of the valley, which we now entered, was of the same nature as that of Schoellenen; the Rhone foaming with amazing rapidity, and falling in a continual cataract at the foot of irregular and immeasurable Alps. We travelled through this valley above two leagues, perpetually ascending or descending the rugged sides of rocks; one moment close to the river, and the next some hundred yards above it. At first, the rocks were either bare, or studded with a few straggling pines, but as we advanced, became more and more clothed with wood and verdure; still, however, we observed no traces of any habitation, and we had now measured at least fifteen miles from the valley of Urferen, without seeing a single dwelling. I was here so struck with the beauty of the forests and the luxuriance of the pasture, that I could not avoid expressing my astonishment, on observing no appearance of any habitation in these delightful spots. I had scarcely made the remark, when four or five cottages, situated on the other side of the Rhone upon a beautiful declivity, announced our approach to the Vallais. Not long afterwards we unexpectedly came to an opening, which commanded an extensive view of that fertile vale, containing several scattered villages. In this very spot, a peasant of taste has built his cottage. Here we quitted the rugged track, and descended into the Vallais.

We had proposed passing the night at Oberwald, after the fatigues of the day, but, upon enquiry, found no refreshment. The master of a little hovel, which was called an inn, pointed to a large cheese, and told us that was all his provision: it was his bread, his fish, and his meat. As there was no better accommodation at Obergestlen, we continued our route to Munster, where we did not arrive till late; here we found an excellent inn for this country, which afforded good bread, and even some meat; but, what was far more comfortable to me, a quiet room and a clean bed.

I am, &c.

LETTER XXIX.—*Mount Grimsel.—Source of the Aar.—Of the Chamois.*

Spital upon the Grimsel; August 11.

THE Vallaisans are remarkably attached to their liberty. On quitting Munster this morning we joined company with a peasant, with whom we had a long conversation. He demanded our opinion of the country; and, pointing to the mountains, exclaimed, "Behold our walls and bulwarks; Constantinople is not so strongly fortified." This upper part of the Vallais, I should imagine, is not much frequented by travellers, if we may judge from the curiosity of the people, who all came out to gaze upon us; and, on

discovering that we were Englishmen, they observed us with greater attention. But what surprized us was, that the peasant above-mentioned inquired concerning the state of our war with the Americans.

After returning about a league through the same fertile and well-cultivated country which we traversed yesterday, we left the plain, and ascended the Grimsel; one of those Alps which separate the Vallais from the canton of Bern. We employed four hours in climbing a steep and craggy road to the summit, and should have considered the attempt as scarcely practicable, had we not been encouraged by the experience of yesterday. We crossed the several shades of vegetation: in the valley, and the lower parts of the mountain, corn and rich meadows; then forests of larch and pine; next, short grass, together with several species of herbs, that afford exquisite pasture to the cattle; to these succeeded the various tribes of mosses and lichens; then bare rock and snow. It would be curious to construct, or at least to imagine, a scale of vegetation, according to the idea of a French writer; who asserts, that excessive cold and excessive heat are equally pernicious. The tops of these mountains are barren, and produce no plants; and at certain heights nothing but mosses and lichens will vegetate: the same occurs in climates where the heat is intolerable; as no other vegetable productions are observed in the burning sands of Africa. The lichens and mosses then, which support the cold better than other plants, would form the first degree of a scale adjusted to determine how far vegetation accords with the temperature of the atmosphere. The same families of plants, as they bear also the heat much better than any other, would occupy the last degree in the scale. Thus, according to this fanciful scale, the two extremes touch each other surprisngly.

From the top of the Grimsel we descended about two miles, and arrived at a small plain or hollow in the midst of the mountains; containing one solitary hovel, from which I am now writing to you. Notwithstanding its wretched appearance, we found in this desert spot all the accommodations we could wish for, except beds, and these are the less necessary, after our sound sleep last night. Not to mention excellent cheese, butter, and milk (our ordinary fare), we obtained some good wine, a small portion of kid, and a boiled *marmot**, which we have just devoured; although at another time we should have revolted at the very idea. The landlord is stationed in this forlorn region by the canton of Bern, and resides in it about nine months; he usually arrives here on the first of March, and retires in the beginning of December. When he quits the place, he leaves a certain quantity of cheese, hard bread, salted provision, and fuel, in case any unfortunate wanderer should happen to come this way in winter; and we observed long poles fixed on both sides of the track at small distances from each other, in order to point out the path to travellers, who may chance to pass this mountain after the snow has begun to fall. The road is seldom open for horses before the first of June. Near the house, upon the top of a small rock, our host has contrived a kind of little garden, by bringing some earth from the neighbouring pastures: this small piece of ground supplies him tolerably well with turnips and cabbages; although, on account of the height of the circumjacent mountains, it does not long enjoy the warmth of the sun.

Numerous herds of goats are kept, during the summer months, upon these mountains: they are let out every morning to feed, and return every evening before sun-set, to be milked and housed. It was a pleasing sight to observe them marching homeward

* See an account of the marmot, in Letter lxx.

in the same herd, and following each other down the broken precipices, and along the rugged sides of the rocks.

This hovel, besides the storehouses for cheese, contains only a small kitchen, a bed-chamber appropriated to the family, and a room, in which we are now sitting. We occupy nearly one side: the other is taken up by our servants, the landlord and his wife and half a dozen honest labourers: the latter are partaking of their homely supper, with all the relish of well-earned hunger, and are enjoying a short respite from their toil, with that noisy mirth which characterises this class of people.

'The sources of the Aar are in these mountains.' Near our hovel are three lakes that supply that river, which rolls down in an impetuous torrent from the neighbouring glaciers. While dinner was preparing, we walked by the side of the Aar, searching for crystals, which are very common in these parts: we found pieces of divers colours, white, black, yellow, and green. These mountains certainly abound also in rich veins of gold, and other metals; a considerable quantity of gold-dust being found in the bed of the Aar*, and in the various torrents. I can conceive nothing more fatal to the interests of Switzerland nor more repugnant to the liberties of the people, than to have these mines of gold or silver traced and opened. A sudden overflow of riches would effectually change and corrupt their manners: it is an incontestable truth, that the real power of a country, not ambitious of conquest, is derived less from the wealth than from the industry of its subjects; the happiness of a people, as well as of an individual, consisting in contentment.

What a chaos of mountains are here heaped upon one another! a dreary, desolate but sublime appearance: it looks like the ruins and wreck of a world.

On the Grimsel, Aug. 29, 1786.

You will recollect that, in 1776†, I described the passage of the Furca as extremely difficult and attended with some danger. But that was my first essay over the less frequented alps. How different are our sensations at different intervals! To-day, on measuring the same ground, though I did not find the road as *smooth as a bowling-green*, I yet never once dismounted, but rode with my Letters on Switzerland in my hand occasionally making notes and observations: it must, however, be confessed, that in many parts, where a faint path along the crags and impending precipices was scarcely obvious, my situation was not very favourable for accurate composition.

From the top of the Furca, instead of immediately descending and pursuing the same road which I followed in 1776, we sent our horses forwards, and ascended the Galleberg to the upper part of the glacier of the Furca: from thence we looked down upon the Vallais and the Rhone flowing through it, as upon a small field watered by a rill; above and around, and as far as the eye could reach, we observed numberless pointed alps, and particularly that stupendous chain called the *Aar-Gletschers*, which comprizes, among many others, the Finster-aar-horn, the Wetter-horn, the Jung-frau-horn, and the Schreck-horn.

The upper part of this glacier of the Furca is far more beautiful than the lower extremity; the snow is of a more virgin white; the pyramids of ice more bold, and the blue tints more lively and animated. Having enjoyed, in different directions, this icy scene, we descended near the edge of the glacier, and refreshed ourselves with some water from two transparent springs called *Aughstweicht-brunnen*, that burst from the

* It has been suggested to me, that no gold-dust is found in the Aar, until it has received the Reichenbach.

† See the preceding Letter.

sides of the rock, at a small distance from each other. We then went down a very steep descent, till we joined the track which I pursued in 1776. I recollected with a pleasing satisfaction, the torrent near which we took on that occasion our humble repast, and came to the Rhone about half a mile below the spot where it bursts in two streams, from the bottom of the glacier. In order to have a nearer view, we crossed the two streams, which, though scarcely three feet in depth, rushed with such violence, as almost to overturn the guide who conveyed me on his shoulders. Having admired the arch of ice, and paid our obeisance to the majestic habitation of the River-God, we walked at the foot of the Statzberg, and noticed several lively springs issuing from the ground, which the inhabitants call *cold-waters*, and a little further three warm sources*. These sources, uniting with several cold springs, fall within a few paces of their rise, into the great torrent that flows from the glacier, and are usually considered as the *true* sources of the Rhone. That honour is appropriated to these little rills, because being of an equal temperature in all seasons of the year, they do not owe their origin, like the *cold waters*, to the melted snow and ice, and are as abundant in winter as in summer. It appears, however, extremely inconsistent to dignify these little streams with the exclusive title of the sources of the Rhone; for that river undoubtedly owes its origin and greatness to the perpetual and inexhaustible supplies from the surrounding glaciers.

We had now employed above nine hours in this expedition, and should have continued much longer amid these majestic scenes, had not the declining sun reminded us of approaching night. Being still at a considerable distance from any habitation, we continued our route, and began ascending the Grimsel, near the warm sources. The track, though extremely steep, and almost perpendicular, was not dangerous, because the rocks were thickly covered with small shrubs, herbage, and mosses.

After an hour and a quarter's tedious ascent, we attained the summit of the Grimsel, and descending a rugged ridge of granite rocks, looked down upon a lake, from which

* I am indebted to Saussure for correcting a trifling error in a former edition of this work, in which I observed that the mercury in Reaumur's thermometer stood at 10 above freezing point, or 55 of Fahrenheit: but that ingenious naturalist, on plunging the thermometer into one of these sources found the mercury stand at $14\frac{1}{2}$ or 64. 7. of Fahrenheit.

The experiments which Saussure made in analysing the waters, shall be inserted in his own words:

“ La hauteur de cette source est, d'après mes observations du barometre, de 900 toises au-dessus de la Méditerranée. Or, il est si extraordinaire de trouver une source chaude à une telle élévation, et de la trouver au milieu des glaces, qu'il étoit intéressant de rechercher sa nature, et de voir si cette recherche ne donneroient point d'indication sur la cause de sa chaleur.

“ Dans ce dessein, j'y portai, en 1783, quelques réactifs, avec de petits verres, que je lavai dans l'eau même de la source, et j'en fis l'épreuve sur les lieux. La solution de soude ne la trouble en aucune manière, non plus que l'acide du sucre, phénomène bien rare, et qui prouve que ces eaux ne contiennent aucun sel à base terreuse. Mais la solution de terre pesante dans l'acide marin, ou le muriate de baryte, la trouble un peu; ce qui indique la présence de l'acide vitriolique; et comme d'un autre côté, cette eau ne change nullement les couleurs végétales, et qu'ainsi l'acide ne paroît point être libre, il est vraisemblable qu'il y est combiné avec un alkali, et qu'ainsi c'est du sel de glauber ou de sulfate de soude que ces eaux contiennent. Enfin la dissolution d'argent dans l'acide nitreux, la trouble sur le champ, et après une demi heure de repos, la liqueur se sépare en deux parties; celle de dessus, qui forme les $\frac{2}{3}$ du verre, est grise et opaque, tandis que celle du fond paroît d'un rouge transparent. Il suit de là que ces eaux contiennent du soufre, mais plutôt sous la forme de vapeur, que dissous par une terre, puisque l'acide nitreux libre n'y occasionne ni précipité, ni changement de couleur.

“ En la savourant avec attention, j'y reconnus un gout légèrement sulfureux, et mon domestique, qui n'étoit point prévenu, le reconnut également. Il est donc vraisemblable, que cette eau, vraiment thermale, doit, comme les autres, sa chaleur à quelqu'amas de pyrites qui se réchauffent en se décomposant lentement dans le sein des montagnes. Les tremblements de terre, si fréquents dans le canton d'Uri, sur les frontières duquel ces sources sont situées, rendent plus probable encore l'existence de ce foyer.”

Saussure, *Voyages dans les Alpes*, tom. iii. p. 483, 484.

issues a stream that falls into the Rhone. A little further we passed several small rills and dark lakes which supply the Aar; in less than an hour entered the road which leads to the Vallais, and reached the place of our destination, the same hovel on the Grimsel, where I passed the night on my former expedition. We arrived there about eight in the evening, after a journey which employed us more than twelve hours. I was much struck with the view of the lake near the Inn: it is of a dark appearance, and its name is as melancholy as its aspect: it is called the "*Lake of the Dead*," because the dead bodies of those who perish in traversing these inhospitable regions, are usually thrown into it*.

No situation can exceed the solitary horror of the scenery on the top of the Grimsel. Its appearance resembled the inside of a mine, and seemed as if the bowels of the earth had been violently rent asunder; reminding me of that sublime description in the *Æneis*, when the inside of Cacus's cave is instantaneously laid open by the arm of Hercules.

*At specus, et Caci detecta apparuit ingens
Regia, et umbrosæ penitus patere cavernæ.
Non secus ac si quæ penitus vi terra dehiscens
Infernas referet sedes, et regna recludat
Pallida, Diis invisa; superq; immane barathrum
Cervatur, trepidentque immisso lumine manes †.*

On entering the hovel I immediately recognized the same landlord, who was stationed here in 1776, to whom, at that time, I never expected to owe a second reception in so forlorn a spot. While supper was preparing, a peasant and our guide, forgetful of his great fatigue, suddenly started up at the sound of their favourite air, the *Renz des vaches*, played upon a rebec by a shepherd, and danced several *allemandes*, perfectly in time, and not without grace; a picturesque group of spectators looking on and applauding.

August 30.

This morning we made a short excursion to the source of the Aar, which takes its rise in neighbouring glaciers. In less than half an hour we entered a small plain, skirted by high mountains, and entirely closed by a rugged chain of alps, over which tower the Finster-Aar and Lauter-Aar-horns, and at whose feet stretches a glacier so entirely covered with earth and stones, as to bear, at a small distance, the appearance of a sand-hill. From this glacier issues a "*torrent roaring loud*" of troubled waters, which is the source of the Lower Aar, and joins, in a few hundred paces, another stream called the Upper Aar, that falls from the Zinkeberg; the union of these torrents forms the Aar, which rushes with great impetuosity over enormous fragments of rock. At present it runs in a narrow channel; but at the first melting of the snow in spring, overflows the whole space between the mountains, and becomes a temporary lake.

* Saussure, vol. iv. p. 462.

† Dryden's *Virgil*, Book viii.

The court of Cacus stands reveal'd to sight;
The cavern glares with new-admitted light,
So pent, the vapours with a rumbling sound
Heave from below, and rend the hollow ground.
A sounding flaw succeeds; and from on high
The gods with hate behold the nether-sky;
The ghosts repine at violated night,
And curse the invading fun, and sicken at the sight.

Our guide is a *chasseur*, who frequently ranges over this vast chain of Alps in pursuit of the chamois, an animal remarkable for its activity in scouring the craggy rocks, and leaping over the precipices. He informed me that this glacier is the extremity of a valley of ice about twelve miles in length, and from one to four in breadth: it then divides into two branches; one extends towards the Schreckhorn, and the other towards the Vallais. He expatiated with great enthusiasm on the profession of a *chasseur*, though extremely laborious, and at times dangerous. He usually kills from fifteen to sixteen chamois in a year: with the flesh, which is very delicate, he helps to support his family, and disposes of each skin for a guinea. He uses a rifle-barrelled gun, and generally shoots them at the distance of three or four hundred yards.

The chamois are very timorous, and consequently watchful animals. They usually go out in herds of twenty or thirty; while they are feeding, one of them posted on an adjacent height stands *centinel*, and is relieved at short intervals by another. The *centinel* looks around with great solicitude, and on the least suspicion of danger alarms the herd by a shrill cry; instantly the whole troop decamp, one following the other.

The chamois feed on various kinds of herbage, and particularly on the *Lichen Rangiferinus*, or rein-deer lichen, which is found in such great quantities, as in many parts to cover the summits and sides of the mountains. In order to procure their favourite food in winter, they, like the rein-deer, clear away the snow with their fore-feet, frequently thawing it with their breath, for the purpose of loosening it more easily. But when, either from the depth or hardness of the snow, they cannot penetrate to the lichens, they browse on the saplings of pine and fir. In summer their bodies are of a yellowish brown, and whitish under the throat; the hair is short and smooth; in winter their coat lengthens and grows dark, so as to resemble that of a bear. Sometimes, but very rarely, they have been found speckled, or of variegated colours, and lately a chamois entirely white was shot upon the Engelberg. It was in all other respects similar to a common chamois, and it is uncertain whether it owed its colour to age or accident.

Linnæus has classed the chamois in the goat genus, under the name of *rupicapra*, or mountain-goat; his acquaintance with the antelopes having been too slender to enable him to form a genus of antelopes, which Pallas first constructed, and where he has judiciously placed this animal. The example of Pallas has been followed by Pennant and succeeding zoologists. I am, &c.

LETTER XXX.—*Valley of the Aar.—Land of Hasli.—Meyringen.*

August 1776.

I FOUND the cold upon the Grimsel more piercing than upon the St. Gothard, and last night it even deprived me of sleep. But then circumstances were very different in the two lodgings; for on the St. Gothard I had a comfortable bed, whereas last night I lay in the hay-loft, without any covering: I declare, my blood has scarcely recovered its circulation. Take notice, this is the twelfth of August.

Having quitted our wretched abode on the Grimsel, we passed along the valley of the Aar, through a chain of wild, rugged, and uninhabitable Alps.

The road along this valley, though much narrower than that from Altdorf to the St. Gothard, is formed in the same manner along the steep acclivities and declivities, sometimes laid on arches, and sometimes carried over bridges thrown across tremendous precipices. It is paved with flat pieces of granite, so smooth and slippery, that the horses

would have perpetually stumbled, had they not been rough-shod. In some places this road ran along the bare and rugged ridges; in others, down steps, either cut in the rock, or formed by large stones, so that for several paces it resembled a stair-case. The whole surface of the valley was thickly strewed with vast fragments of rock; while those which still hung on the sides of the mountains seemed threatening to overwhelm us; the river, during the whole way, thundering along in a continual fall. This valley exhibits the same kind of scenes to which we have been long accustomed; except that the Aar rushes with more impetuous rage even than the Rhone or the Reufs, and is frequently so swelled with torrents as to ravage all the adjacent country: we saw many traces of these terrible devastations. We crossed it in several places, over stone bridges of a single arch, one of which equalled, in the length of its span and dreariness of the landscape, the Devil's Bridge in the valley of Schoellenen. About three leagues from Spital we had a glimpse, through the trees, of the Aar falling from a considerable height. In order to gain a nearer view, we climbed along the sides of a steep rock, well covered with moss: I leaned against a tree that impended over the precipice, and saw the river rushing from the rock, and spreading into a kind of semicircular expansion in its descent. It fell with fury into a deep and narrow gulf, and then lost itself in the midst of the forest. The body of water was very considerable, and its perpendicular fall at least one hundred and fifty feet. The scenery was also solemnly majestic; the grey rocks on each side rising perpendicularly, and totally bare, except their tops, which were fringed with pines.

This picturesque scene appeared to realize a favourite image of classic antiquity: as I viewed the Aar pouring its flood of waters from a crevice of the rock, I figured to myself the Nile or the Tyber bursting at once from the urn of a River God.

In our way to Meyringen, we traversed large forests of beech and pines, the Aar roaring along the valley, and the road, which was usually craggy and rugged, incessantly ascending and descending. We now passed through several small villages, which afforded a pleasing sight, after the desolate country we had lately quitted, and entered a beautiful little valley of a most lively verdure, and delightfully planted. All was calmness and repose; neither rapid river nor roaring torrent to interrupt the unusual stillness and tranquillity of the scene. This short interval of silence rendered us more sensibly affected with the turbulence of the Aar, and the loud clamour of the cataracts.

From this silent and sequestered spot, we descended to a larger valley on the banks of the Aar. Perhaps no other part of Switzerland would yield more delight and occupation to the landscape-painter than this picturesque valley, from the agreeable and ever-changing colour of the rocks which bound it, their summits finely broken into irregular and fantastic forms, and from the variety and size of the fragments dispersed near the banks of the river. Each fragment, each cottage, each shed, each shrub, is a picture; the effect being considerably heightened by the transparency of the air, and the grandeur of the back-ground.

I have now visited the sources of three great rivers in Switzerland, and traced their impetuous progress through a tract of country, in which nature has exhibited the grandest and most august of her works. But it is impossible adequately to describe these majestic and astonishing scenes! In description they must all appear nearly the same; yet, in fact, every river, cataract, rock, mountain, precipice, are respectively distinguished by an infinite diversity of modifications, and by all the possible forms of beauty, magnificence, sublimity, or horror. But these discriminating variations, though too visibly marked to escape even the least observing eye, elude representation, and defy the strongest powers of the pen and pencil. In a word, you must not judge of this romantic country

country from the faint sketches I have attempted to delineate; they can no more convey an idea of these wonderful scenes, than if I were to aim at describing the pictures of Claude and Salvator, by informing you that they are composed of paint and canvass.

Meyringen, a large and neat village, is the capital burgh of Hasliand, a district in the canton of Bern, which enjoys considerable privileges. The people are governed by their own magistrates, and only take oaths of fidelity to the Sovereign Council. All the authority, which the bailifs in the other parts of this canton enjoy, is possessed in a great measure by the Landamman, who resides at Meyringen. He is always a native of Hasliand, and is appointed by the Sovereign Council of Bern, at the recommendation of the bailif of Interlaken. Most of the other magistrates are elected by the people, who assemble as occasion requires, and are convoked by the Landamman.

The inhabitants are a fine race of people: the men in general remarkably strong and well made; the women tall and handsome. The women have an elegant manner of wearing their hair, which is commonly of a beautiful brown: it is parted on the top of the forehead, from thence brought round and joined to the locks behind, which either hang down their back in long tresses, are braided with ribband, or woven round the head in a simple plait.

Meyringen is situated near the Aar, in a romantic vale, surrounded by meadows of a most luxuriant verdure, and sprinkled with cottages, which are occasionally separated by huge intervening stones and deep channels, the vestiges of storms and floods. Close to the village, the torrent Alp bach falls from Mount Housli, in two perpendicular cascades, but with so much violence, and in so large a body of water, as to cause frequent inundations: indeed the burgh itself has been in danger of destruction by its repeated ravages; against which, however, it is now protected by a wall of considerable height and solidity. Near this torrent another fall of water, the Dorf-bach, glides gently down the bare rock; further on, the Millebach glistened as it descended through a hanging grove of pines, that feather the sides of the mountain.

As I stood on a platform of rock, about fifty feet above the bottom of the Alpbach, I looked over the delightful vale of Hasli, observed Mount Sheidec rising from the banks of the Aar, and linking in one part, as if on purpose to discover three tremendous peaks towering in regular gradation: the one a naked conical rock; the second tapering and sprinkled with snow; and the third, which is the highest point of the Wetterhorn, of a pyramidal form, mantled with glistening ice.

The following is the ordinary price of provisions throughout the mountainous parts of Switzerland.

						s.	d.
Butcher's meat,	per	pound				0	2½
Bread	—	do.				0	1½
Butter	—	do.				0	2½
Cheese	—	do.				0	2½
Salt	—	do.				0	1½
Milk,	per	quart				0	1½
Worst wine,	per	do.				0	1½
Pays de Vaud wine						0	6*

* The reader will recollect that this list was taken in 1776, since which time the price of provisions is considerably augmented.

By this list you will perceive, that bread is much dearer in proportion than the other articles, and the reason is obvious; for these mountainous parts abound in pasture, but produce little corn. The peasants, inhabiting the mountainous districts of Switzerland, live chiefly upon milk and potatoes. I had to-day a long conversation with one of our guides; he lives upon the mountains of Uri; and, as the winter lasts near eight months, each family lays in sufficient provision for the whole time. His own family consists of seven persons, and is provided with the following stores: seven cheeses, each weighing twenty-five pounds; a hundred and eight pounds of hard bread; twenty-five baskets of potatoes, each weighing about forty pounds; seven goats, and three cows, one of which is killed. The cows and horses are fed with hay, and the goats with the boughs of fir, which, in a scarcity of fodder, are given also to the other cattle. During this dreary season, the family are employed in making linen and cloth: for this purpose a small part of the ground belonging to each cottage is generally sown with flax, which has lately been much cultivated, and with increasing success, in the mountainous districts.

The houses, like those of Appenzel and Glarus, are generally of wood; and it was a natural observation of one of our servants, in passing through a continued chain of rocks, that as there was no deficiency of stone, it seemed extraordinary to employ wood alone for the purposes of building. But it may be remarked, that these wooden houses are sooner constructed, and easily repaired; and being formed in a compact manner, with small rooms, and low ceilings, are sufficiently warm even for so cold a climate. The chief objection arises from the danger of fire; which, however, is in some measure obviated by the method of building their cottages detached from each other. But this observation does not hold with respect to some of their largest burghs, which are exposed to the ravages of this dreadful calamity. I am, &c.

LETTER XXXI.—*Fall of the Reichenbach.—Passage of the Scheidec.—Valley and Glaciers of Grindelwald.*

Grindelwald, August 13.

WE left Meyringen this morning, crossed the Aar, and ascended the Scheidec through a beautiful forest of beech, poplars, mountain-ash, and pines. About two miles from Meyringen we dismounted at a small village, and passed along some fields, in order to view the fall of the Reichenbach, which is deservedly celebrated for its variety and beauty: it has its source at the foot of the Wetterhorn, and rolls in numerous cataracts down the steep sides of Mount Scheidec, until it joins the Aar near Meyringen.

The fall may be divided into three principal parts.

The first, which alone is usually visited by travellers, precipitates itself from an overhanging rock, is reduced into spray and foam, and in that state falls in a perpendicular column, from an elevation of at least two hundred feet, into a natural basin, and is soon lost in the abyss beneath. The rock itself is concave, arched, totally bare, excepting its summit, which is feathered with shrubs, and being of black marble, forms a striking contrast with the pure whiteness of the descending foam. Part of the spray rebounds on the rock, and glides gently into the basin in many a silvery current.

The second cataract begins from the overflowing of the basin, and is most advantageously seen from a large tree hanging on the side of the precipice; the torrent forms a second perpendicular column, which is half obscured as it dashes through a chain of projecting rocks. The best point of view for seeing the third cataract is in a meadow at the bottom of the second. From that situation the whole Reichenbach seems one
imense

immense water-fall ; the bottom of the first, and the top of the second cataract, being concealed by the intervening hills. From thence it rolls nearly in a horizontal direction ; is divided into two streams by a rocky island beautifully sprinkled with trees, and impetuously descends in two unequal bodies. It then dashes over broken crags of black marble, through groves of beech, mountain-ash, and pines, and rich grounds interspersed with hamlets.

On viewing the various parts of this stupendous fall, I was as much interested and affected as Aristæus is represented by Virgil, when his mother Cyrene points out to him the sources of the principal rivers bursting at once from the earth :

*Jamque domum mirans genitricis et humida regna,
Speluncisque lacus clausos, lucosque sonantes,
Ibat, et ingenti motu stupefactus aquarum.
Omnia sub magnâ labentia flumina terrâ
Spectabat diversa locis, Phasimque, Lycumque,
Et caput, unde altus primum se erumpit Enipeus,
Unde pater Tiberinus, et unde Aniena fluentia,
Saxosumque sonans Hypanis, Mysusque Caicus,
Et gemina auratus taurino cornua vultu
Eridanus, quo non alius per pinguia culta
In mare purpureum violentior influit amnis *.*

From hence ascending by the side of the Reichenbach, we crossed that torrent over a bridge, and having traversed several plains, or rather undulating vallies, beautifully sprinkled with ash, poplar, and other large trees, continued our route at the foot of some enormous mountains, which are called by the general name of Wetterhorn †, or *Stormy Peak*. This enormous group, which forms the Wetterhorn, is peculiarly striking, from the naked majesty and grandeur of its rugged peaks, and from its insulated situation, and because, in passing from Meyringen to Grindelwald, it presents itself the first of this stupendous chain ‡.

- * With wond'ring eyes he views the secret store
Of lakes, that pent in hollow caverns roar ;
He hears the crackling sound of coral woods,
And sees the secret source of subterraneous floods ;
And where, distinguished in their sev'ral cells,
The fount of Phasis and of Lycus dwells ;
Where swift Enipeus in his bed appears,
And Tiber his majestic forehead rears ;
Where Anio flows, and Hypanis profound
Breaks thro' th' opposing rocks with raging sound ;
Where Po first issues from his dark abodes,
And, awful in his cradle, rules the floods.

Dryden's Virgil, Georg. book iv.

† The several peaks of this mountain have different appellations, and are not ascertained without much difficulty, the peasants usually mistaking and confounding them. One is called the Wetter-horn, another the Nager-horn, a third the Engel-horn, and the highest point takes the denomination of Jungfrau-horn, or Virgin-horn, for the same reason as the mountain of that name in the valley of Lauterbrunnen, because its summit is inaccessible. Hence several travellers have mistaken this peak for the real Jungfrau-horn. I have mentioned these circumstances, in order to prevent the confusion of names puzzling future travellers as they once puzzled me. The word *horn* in German, which bears the same signification as in the English tongue, is applied to the highest peaks, as in French *aiguille*, or needle.

‡ To those who go from Grindelwald to Meyringen, the Wetter-horn is the last of this chain. Hence the traveller will not perhaps be so much affected with its majesty and grandeur, as if he first observed it in ascending from Meyringen. I mention this circumstance, because all descriptions are *comparative*.

Having

Having ascended about three hours from the time of our quitting Meyringen, we refreshed ourselves and our horses in a delightful vale strewed with hamlets; a sloping hill, adorned with variegated verdure and wood, on one side; on the other, the Rosenlavi and Schwartz-wald glaciers stretching between impending rocks; and before us the highest point of the Wetterhorn lifting its pyramidal top capped with eternal snow. As we were taking our repast, we were suddenly startled by a noise, like the sound of thunder, occasioned by a large body of snow falling from the top of the mountain, which, in its precipitate descent, had the appearance of a torrent of water reduced almost into spray. These *avalanches* (as they are called) are sometimes attended with the most fatal consequences; for when they consist of enormous masses, they destroy every thing in their course, and not unfrequently overwhelm even a whole village. The best preservative against their effects being the forests, with which the Alps abound, there is scarcely a village, if situated at the foot of a mountain, that is not sheltered by trees, which the inhabitants preserve with uncommon reverence. Thus, what constitutes one of the principal beauties in the country, affords also security to the people.

We continued our course at the foot of the Wetterhorn, which in this part is so extremely perpendicular and tapering as to appear like half of an immense pyramid. Here we conceived it impossible that any scenes could be more rude and majestic than those before us; but on reaching the top of the Scheidec, we burst upon a view so far exceeding them in wildness and horror, that we unanimously exclaimed, "There is the *Schreckhorn*, or *Peak of Terror*." The descent from hence to Grindelwald is gentle but tedious. That village, consisting of numerous cottages, dispersed over the plain and upon the rising hills, exhibits an agreeable and picturesque scene, heightened at the same time by a view of the vallies of ice, which stretch along the steep sides of the mountains in a regular curve, and are beautifully skirted with wood.

The two vallies of ice, which extend into the plain of Grindelwald, are called the Superior and Inferior Glaciers. The former lies between the Wetterhorn and the Mettenberg; the latter between the Mettenberg and the Eger-horn. The Mettenberg is the base of the Schreckhorn; and the Eger-horn, or *Pointed Peak*, borders on the valley of Grindelwald, and slopes gradually from barren rock and snow to fertility and cultivation*.

August the 14th.

DARE I confess to you that I am somewhat disappointed, and that a nearer view of the glacier has not sufficiently compensated for the fatigue and trouble of the expedition? But I have promised to write from my own feelings, and not to send an account taken from exaggerated descriptions.

We sallied forth this morning full of impatience, and arrived at the bottom of the Inferior Glacier, forming a majestic arch of ice, from which issued a loud torrent of snow-water. This glacier is composed of numerous pyramids, which are more elevated towards the plain; being from about forty to fifty feet high, and gradually shortening, until they terminate in a broad surface broken into deep and wide chasms. We mounted a very difficult path at the edge of the frozen region, occasionally passing over the steep and craggy parts of the rock almost perpendicular, along the very sides of the precipice, the danger of which makes me shudder even now. This glacier is several miles in length, and is supposed by many travellers to join the glacier of the Aar, which I vi-

* For a further account of this chain of Alps, which are contiguous to the vallies of Grindelwald and Lauterbrunnen, see Letter on the Chain of Alps observed from Bern.

sited in my expedition to the top of the Grimsel. But the reverend Mr. Wytttenbach, of Bern, who has frequently examined its direction from the adjacent heights, assured me that those two glaciers are separated from each other by a chain of mountains.

After employing above two hours in ascending, we were prevented from continuing our progress by rugged rocks, and a rising hill of ice; our guide assuring us at the same time that it was impossible to proceed. Of this we were by no means convinced; but not having any conductor who could lead the way, and not daring to explore these unknown regions alone, we descended with heavy hearts, much disappointed that what we had seen, though certainly a very curious and sublime sight, did not equal our expectations: it added to our chagrin, on being afterwards informed, that though we could scarcely have proceeded further in the direction which we took, yet that if we had followed another path we might have penetrated to the Superior Glacier, and reached the base of the Schreckhorn. In that part between the mountains, now occupied by the Inferior Glacier, there was formerly a road which communicated with the Vallais, but at present impassable; and a spot was pointed out to us, now covered with ice, where once stood a small chapel.

Not far from this glacier of Grindelwald, pines, willows, ash, and oaks, grow and come to perfection; and near the borders of the ice I gathered strawberries and wild cherries, and observed hazel nuts, barberries, and mulberry-trees. The valley of Grindelwald is extremely fertile; it produces barley, rye, hay, hemp, and fruit-trees in great abundance, and feeds above two thousand large cattle. I am, &c.

LETTER XXXII.—*Valley and Glaciers of Lauterbrunnen.—Fall of the Staubbach.*

A TOLERABLE road leads from Grindelwald to this place, and we met a cart, which to us is become a remarkable object, not having seen any thing moving upon wheels since we quitted Lucern. The country is pleasingly diversified with hanging woods, immense rocks, deep precipices, and violent torrents. But I suppose you are by this time as much accustomed to rocks, precipices, and torrents, as the readers of Fingal to blue mists and hollow winds*.

The valley of Lauterbrunnen is embosomed in the midst of the Alps. The western boundary, from which the Staubbach falls, would, in any other country, be called an enormous mountain: it here appears only a trifling hill in comparison with the opposite chain, of which the highest point is the beautiful Jungfrau-horn, that stretches in a semicircular direction, and, towering above the adjacent peaks, rises to a stupendous height.

We are now lodged at the house of the clergyman of Lauterbrunnen; a little village, or rather collection of cottages, sprinkled, like those of Grindelwald, about the valley and accessible parts of the hills. Near the house is the celebrated fall of the Staubbach, from which I am just returned. This torrent rolls perpendicularly from so considerable a height, and resolves itself into fine spray; the greater part falls clear of the overhanging mountain during its whole descent; but the remainder dashes about

* A nearer and more interesting, but more difficult passage, conducts over the Scheidec from Grindelwald to Lauterbrunnen. In my second tour, I proposed traversing this passage, and had actually set off for that purpose; but a violent shower obliging me to change my resolution, I continued my journey along the same road as before.

It may be proper to apprise the traveller, that there are two Scheidecs, the one separating the vallies of Grindelwald and Meyringen, the other those of Grindelwald and Lauterbrunnen.

half way against a projection of the rock, and flies off with great violence. The clergyman measured a short time ago its perpendicular height, and found it nine hundred and thirty feet. The sun shining in an opposite direction, a miniature rainbow was reflected towards the bottom of the fall; while I stood at some distance, it assumed a semicircular figure; as I approached, the extremities gradually coincided, and formed a complete circle of the most brilliant colours. In order to have a still finer view, I ventured nearer and nearer, the circle at the same time becoming smaller and smaller; and as I stood quite under the fall, it suddenly disappeared. When I looked up to the torrent, it resembled a cloud of dust, and from this circumstance it takes its name; Staubbach signifying, in the German language, a spring of *dust*. I paid for my curiosity, by being extremely wet; but then I had the satisfaction, at the same time, of seeing a rainbow in miniature: no uncommon phenomenon, however, as it may be observed in any cascade upon which the rays of the sun fall in a certain direction. In the present instance, however, it was some consolation to me that the object happened to be peculiarly striking.

The next morning we rode to the extremity of the vale, in which there are some noble points of view, and ascended to the glaciers, stretching from the feet of the Breit-horn and Gross-horn. In this delightful valley many streams* of the clearest water gush from the earth like small rivers, and numberless torrents precipitate themselves from the mountains. I noticed two in particular, which fall from a greater height than even the Staubbach; but as their descent is not so direct, they are less extraordinary.

After mounting above three hours we reached a small hut, which in summer is inhabited by herdsmen, who make excellent cheese, and tend numerous herds of cows, goats, and swine. Here we feasted upon cold chamois, which our host had provided for us, and concluded our repast with a desert of delicious cream. From thence we ascended still further, with considerable difficulty arrived at the borders of the glaciers, and were entirely surrounded by rugged and almost impassable rocks. We wished to proceed; but our host assuring us that we had only time to return before night, we sat down close to the ice, and contemplated with rapture and astonishment part of the great central chain of the Alps; rocks towering above rocks, and mountains rising above mountains, not more distinguished for their stupendous height, than for the endless variety and rudeness of their forms. One of the peaks, which is called the Gross-horn, is of a pyramidal shape, and capped with frozen snow; another, the Breit-horn, is conical, and seems crowned with an enormous mass of transparent ice, from which the reflection of the sun-beams was inexpressibly beautiful. But the most elevated and most majestic of the whole group is the Jungfrau-horn, or Virgin's horn, which receives the name of *virgin*, because its summit is inaccessible.

The hollows between the mountains are filled with large vallies of ice, broken into a great variety of shapes; and several torrents bursting from the snow, and uniting in their course, form the Weifs-Lutchine, a river which rolls rapidly through the valley of Lauterbrunnen, joins the Schwartz-Lutchine, which flows from Grindelwald, and swells the Aar. Many of the mountains are covered to a great height with verdure, on which the eye reposes with delight amid the horrors of such wintry scenes. We observed also, at considerable elevations, small villages, the access to which must be almost as difficult as to the glaciers to which we ascended.

* From which circumstance it receives its name, *Lauterbrunnen*, in German, signifying many springs.

Notwithstanding the magnificence and variety of this scenery, and the uncommon phenomenon of ice and snow in the midst of summer, bordering on forests and cultivation; I must again repeat, that the ideas which we had previously conceived from exaggerated accounts concerning the boundless extent and magnificent appearance of the glaciers, were not sufficiently answered. It is remarkable, that every object in Switzerland has more than gratified our expectations except the glaciers, which must be considered as forming one of the most interesting phenomena in the whole country. This disappointment seems to have been occasioned by the turgid descriptions which we had heard and read of the glaciers of Grindelwald and Lauterbrunnen; and we were led to suppose, that the glacier of the Furca was much inferior in magnitude to those of Grindelwald and Lauterbrunnen; whereas, in fact, it was in all respects equal, if not superior*.

September 1, 1785.

In 1785 I was considerably more delighted and astonished with the vallies of Grindelwald and Lauterbrunnen than in 1776; because my imagination was not in this, as in the former instance, exalted by exaggerated descriptions, and led to expect more than could be reached even by nature herself, however prodigal in these her sublimest works. But the vallies of ice still appear inconsiderable objects when viewed at some distance, and compared with the surrounding mountains, whose summits and sides are clothed with vast tracts of ice and snow. On a nearer approach they become more interesting, particularly when broken into abrupt ridges and immense chasms; and when their aggregate mass and numerous branches are observed from the surrounding heights. Still, however, the traveller may be disappointed, whose imagination has been previously filled with turgid descriptions, or who applies to the vallies of ice that sublimity and magnificence, which are principally due to the Alps above and around them.

LETTER XXXIII.—*Lakes of Thun and Brienz.—Passage of Mount Gemmi.—Baths of Leuk.*

THE nearest route from Lauterbrunnen to the Baths of Leuk leads across the mountains to Kandersteig. It is called *le chemin vert*, or the *green way*, because the rocks are for the most part covered with herbage. It is only practicable to foot-passengers; and I was informed by a Swiss gentleman who passed it, that though steep and difficult, it is not dangerous. Its distance may be three leagues, and to a person not wholly unaccustomed to alpine passages, would require about five or six hours. A *chasseur* would perform it in less than half the time. In my second expedition in 1785 I had proposed crossing this way, but was obliged to decline it, as I could not procure a guide who was acquainted with the road.

I pursued therefore the usual route, which runs from the entrance of the valley of Lauterbrunnen, through a fertile plain, between the lakes of Thun and Brienz. About two leagues from Lauterbrunnen I came to the Aar, near its exit from the lake of Brienz, and followed its course until it entered that of Thun. This lake is about four leagues long and one broad; and, if we may judge from the steepness of the mountains with which it is bounded, must be very deep; the borders are richly varie-

* We perhaps were less struck with the glaciers of Grindelwald and Lauterbrunnen, because we had previously viewed similar scenes in our passage through the most sublime regions of Switzerland; whereas these are the first grand objects in the route usually taken by travellers through Berne, and consequently make a greater impression.



gated, and present several fine points of view, greatly heightened by many rugged rocks rising boldly from the margin of the water. We coasted this lake, through a delightful country, to the small village of Leisingen; then ascended to *Ætschi*, and looked down upon the lakes of Thun and Brienz. In all the maps of Switzerland which have fallen under my observation, these two lakes are represented as if they extended almost in a straight line; whereas they are situated nearly at right angles to each other. You may judge of their true position by the annexed engraving, communicated by the Rev. Mr. Wyttenbach of Bern.

Having descended from *Ætschi*, we soon entered the rich valley of Frutigen, parallel to that of Lauterbrunnen, and enjoyed for a considerable way a prospect of the glaciers we visited the day before. This valley ends at the small town of Frutigen; from thence commences that of Kander, watered by a river of the same name, and bounded by Mount Kander. In all these vallies the rudeness and height of the mountains which almost enclose them, contrasted with the beauty and fruitfulness of the plains, always fertilized by some lively torrent, form a thousand picturesque scenes, ever changing, and impossible to be described: they are still further embellished by the number of ruined castles perched upon points seemingly inaccessible.

From the village of Kandersteg, delicate travellers who do not choose to mount a rugged ascent, either on foot or on horseback, are carried in an arm-chair supported by means of poles upon men's shoulders. We proceeded however, on horseback, having before rode up steeper and more difficult paths. After ascending about an hour and a half we arrived at the summit of the Kander, where a wooden cross marks the entrance into the Vallais; then traversed a waving plain of pasture, in which we observed a few huts and several herds of cattle, and at length reached a single house on the Gemmi, where we procured some refreshment: here we saw nothing but immense rocks piled upon one another, with no appearance of vegetation, and the weather was exceedingly cold. Passing over a large drift of snow, we came to a lake called the Dauben See, about a league in circumference, supplied by a considerable torrent from a neighbouring glacier. This lake has no visible outlet, but doubtless finds a subterraneous passage into the Vallais.

The chain of mountains which here separates the canton of Bern from the Vallais, is called the Gemmi; from the point of which, over-looking and almost over-hanging the Vallais, we had at once a most extensive prospect over that fertile country, and the rugged Alps of Savoy. The mountain which we descended is in many places almost perpendicular, and yet a horse-road has been hewed in the hard rock down this formidable descent. It was begun in 1736, and finished in 1741, at the joint expence of the Vallais and the canton of Bern: an astonishing work! which proves that nothing is impracticable to human industry. More than a league has been blown up with gunpowder, and a way formed which seems dangerous to those who are unused to mountainous countries, or whose heads are apt to turn giddy. It is about nine feet broad, and quite hangs over the precipice; in some parts, for a considerable space, it is a hollow way, open only at one side, the rock above projecting over it, of the same breadth. The effect is peculiarly singular: for, as the road winds continually, the scene also continually changes; so that one moment we commanded an extensive view, and the next were enclosed with barren rock.

The descent from the top to the plain is about two leagues; when you arrive at the bottom, and look up, you cannot observe the smallest traces of a road: so that a stranger would hardly believe it possible, that a passage has been formed down the rock, until convinced by his own experience. About thirty years ago, the troops of Bern

descended this road, for the purpose of assisting the canton of Uri against the inhabitants of the valley of Levino, who had revolted; and, what is almost incredible, they descended with heavy artillery.

* This place is famous for hot medicinal springs, and is much frequented by invalids during this season of the year: the patients either bathe or drink the waters. As far as I can judge from the accounts which I have received concerning their warmth, their analysis, the method of using them, and their efficacy in curing the gout, rheumatism, obstructions, and cutaneous disorders, they seem nearly to resemble those of Bath. There are several springs of different warmth and of different qualities: according to the most accurate experiments made by the Rev. Mr. Wytttenbach, the mercury in Fahrenheit's thermometer, when plunged into the principal source, stood at 115° ; and at 120° in the spring which flows near the bridge over the Dala.

The accommodations for the company are very inconvenient; each person having for his own use a small apartment not more than a few feet square, in which there is just room for a bed, a table, and two chairs. The public dining-room is upon a larger scale, as is also an apartment where the company occasionally assemble. Formerly the accommodations were tolerably good; but unfortunately, in 1719, an *avalanche* from a neighbouring glacier overwhelmed the greater part of the houses and the baths, and destroyed a considerable number of inhabitants.

The company, consisting of persons from different quarters of Switzerland, are exceedingly affable and obliging, insomuch that several of them have invited us to their respective houses; and this invitation was made with that openness and unaffected frankness so peculiarly characteristic of the Swiss. We dined this morning at eleven; the bell for supper is now ringing, and it is scarce seven. These are primitive hours, but we have travelling appetites; and, provided we meet with refreshment, the hour and place are of little consequence.

You are now probably drinking tea in your withdrawing room at Bath, from whence you are enjoying that beautiful prospect I have so often admired. The situation of this spot is more romantic than that of Bath, and the waters perhaps not less efficacious; yet this village contains only a few miserable houses, while Bath is one of the finest towns in Europe. I had a conversation to-day upon this topic, with a very ingenious and well-informed gentleman of the Vallais. I observed to him, that, considering the great credit and efficacy of these waters, I could not forbear wondering, that the chiefs of the republic had not considered the improvement of the accommodations an object worthy of their attention; for if they were rendered more convenient for the reception of invalids, it would undoubtedly be the means of drawing a great number of strangers, and consequently must be highly beneficial to the country. He assured me, it had more than once been in contemplation; that some persons of great credit and authority opposed all improvements, upon a principle similar to the policy of Lycurgus; conceiving that an influx of strangers would only serve to introduce luxury among the inhabitants, and insensibly destroy that simplicity of manners, for which the *Vallaisans* are so remarkably distinguished.

How far the ignorance of the people contributes to their true felicity; or how far simplicity of manners may be corrupted by *national* improvement? are questions which have been much agitated, and will never be decided so long as it shall be held just reasoning to argue from the abuse against the use. But it will readily be allowed, that superstition is ever the companion of ignorance; and that a people who are both ignorant and superstitious, must necessarily be benefited by an intercourse with nations more improved and enlightened than themselves.

We walked to a spot not far from hence, where a communication is formed with the village Albenen. Where the mountain inclines towards a slope, a footpath has been cut; but in those parts where the rock is perpendicular, ladders are placed, and the peasants ascend and descend with heavy burdens upon their shoulders. We counted seven of these ladders. I mention this circumstance, not as being an object so remarkable, perhaps, as is represented by some travellers, but as it will convey to you an idea of the extreme ruggedness and singularity of the country. I am, &c.

LETTER XXXIV.—*Republic of the Vallais.—Cardinal Schinner.—Town of Sion.—Martigny.—St. Maurice.*

Sion, August 19.

SION being nearly the point where the German language terminates, and the French begins, the natives in this part of the Vallais consequently speak both tongues. •

We set out this morning at five, and came down a very steep valley to Leuk, a small town built upon an eminence near the Rhone, which is here very rapid; and, if we may judge by the breadth of the channel, often overflows its banks. We crossed at this place, and continued for some way through a forest of firs, till we again passed the river to Siders; from thence we coasted its banks to Sion, the capital of the Vallais.

Another road leading from the baths of Leuk to Siders, which I traversed in 1785, though more steep and incommodious, is far more interesting to the traveller who delights in picturesque views. It is called the *galleries*, is cut along the sides of an abrupt and rugged rock in a zig-zag direction, and bounded by a wooden railing, which overhangs a dreadful abyss, so deep and obscure, that the river Dala, which rolls impetuously through it, is neither seen nor heard. The opposite chain of mountains is clothed with dark forests, enlivened with pastures, and interspersed with occasional villages, which are situated one above the other to a considerable height, and seem scarcely accessible but to foot passengers.

This tract of country, called the Vallais, stretches from east to west about a hundred miles, and contains one hundred thousand inhabitants, who all profess the Roman Catholic religion. It is divided into Upper and Lower Vallais: the former reaches from the Furca to the Morge, below Sion; and the latter, from that river to St. Gingou, situated upon the lake of Geneva.

The Upper Vallais is sovereign of the Lower Vallais, and comprises seven independent *dixains*, or commonwealths; namely, Sion, Goms, Brieg, Visp, Leuk, Raren, and Siders; of these Sion is aristocratical, and the others democratical. They are called *dixains*, because the Upper Vallais being divided into seven, and the Lower into three districts, each division is a *dixain*, or *tenth* of the whole.

The Bishop of Sion was formerly absolute sovereign over the greater part of the Vallais; but his authority is at present limited to a few particulars. He has the sole power of pardoning criminals, and signs the warrants for execution; the money is coined in his name, and with the arms of the republic. In his acts he styles himself Bishop of Sion, Prince of the German Empire, and Count and Præfect of the Vallais; in days of high ceremony he dines in public, and is waited upon by the first noble of the Vallais, who is hereditary treasurer. He nominates also the bailiffs or governors of the two bailliages of Martigny and Arden, and possesses considerable influence from his patronage of church preferment. Upon a vacancy in the see, the canons of the chapter of Sion
present

present from their own body four candidates, one of whom is appointed bishop by the *Landfrath*, or general diet.

The seven *dixains* form, conjointly with the Bishop, the republic of the Vallais, and all affairs are transacted in the diet, called *Landfrath*, which meets twice every year at Sion. This assembly consists of nine voices; the Bishop; the *Lands-hauptmann*, who is chosen or confirmed by the diet every two years; and the seven communities. The Bishop presides, the *Lands-hauptmann* collects the votes, and all resolutions are decided by the majority. Each *dixain*, although it has but one vote, sends as many deputies as it pleases; they generally consist of four; a judge, a banneret, a captain, and a lieutenant. The judge and the lieutenant are appointed every two years; the two others hold their offices for life.

In all civil causes of a certain importance, an appeal lies from the inferior courts of justice to the diet in the last resort. Thus, by the institution of this supreme council, the communities in this country are firmly united, and form in conjunction one body politic, or republic, for the general affairs of the nation. In other cases, each of the commonwealths is governed by its own particular laws and customs.

Both the Upper and Lower Vallais were formerly dependent upon the Bishop of Sion; but the inhabitants of the two districts united in order to limit his power; and, having succeeded, quarrelled for superiority. A bloody war ensued, which terminated in 1475, by the total defeat of the Lower Vallaisans. Since that period, they have continued subject to the Upper Vallais, with the enjoyment, however, of some considerable privileges.

The republic of the Vallais is an ally of the thirteen cantons, and has formed a particular league with the seven Catholic cantons, for the defence of their religion.

The Bishops of Sion had formerly a considerable influence over the political affairs of Switzerland; and Matthew Schinner, the cardinal bishop, is famous in history for great abilities, daring spirit of intrigue, and restless ambition. He was born at Milbach, in the *dixain* of Goms; and in 1500 was raised to this see. In consequence of his representations and influence, the Swiss troops gave a singular instance of infidelity to their public engagements, by breaking a subsidiary treaty which they had recently contracted with Francis the First, soon after his first invasion of the Milanese. The Swiss historians, however, record with triumph the patriotic conduct of two officers, who, remonstrating against this breach of faith, drew off eight thousand troops, and, returning to Switzerland, in some measure retrieved the honour of the nation. The remainder of the army, instigated by the eloquence of the cardinal, engaged Francis the First near Marignano, in one of the most furious battles fought during the bloody wars of Italy. Night alone put a stop to the engagement, without separating the combatants; both armies were blended upon the field of battle; and Francis slept upon the carriage of a cannon at no great distance from a battalion of the enemy. At day-break the Swiss renewed the charge with their usual courage, and were received with equal bravery. At length the intrepidity of the King, and the desperate valour of the French, rose superior to the repeated attacks of the Swiss, who retreated to Milan, leaving Francis in possession of the field of battle: an advantage, however, which he gained by the loss of his bravest troops.

The Cardinal, actuated by the most inveterate enmity to the French, occasioned also, by his intrigues, the loss of the Milanese to Francis. Lautrec, in the year 1521, commanded a body of twelve thousand Swiss, who formed the principal strength of his army. On the other side, the Cardinal obtained, by his influence over his countrymen, a secret levy of the like number, to join the enemies of France: thus, for the first time, the Swiss were seen combating under opposite banners, and ready to commit hostilities
against

against each other. Upon this occasion the cantons dispatched messengers, with peremptory orders for the Swiss in both armies to return to their country. The Cardinal bribed the messengers to conceal these orders from the Swiss in the army of the confederates, and to deliver them only to those who were in the French service. They obeyed accordingly; and this desertion weakening the army of Lautrec, Milan and the principal towns surrendered to the confederates. Soon after this additional instance of his intrigues and influence, the Cardinal ended his turbulent life in the conclave, which assembled on the death of Leo the Tenth, for the election of a new pope.

The inhabitants of this part of the Vallais are very much subject to *goiters*, or large excrescences in the neck, which often increase to a most enormous size; but, what is more extraordinary, idiocy no less abounds. I saw many instances of both, as I passed through Sion; some idiots were basking in the sun with their tongues out, and their heads hanging down, exhibiting an affecting spectacle of intellectual imbecility. The causes which produce a frequency of these phenomena greatly excite my curiosity; but I shall defer my remarks until I shall have obtained farther information.

The weather in this inclosed vale is so exceedingly sultry, that although the evening is far advanced, I am quite oppressed. This languid heat is probably one of the causes which occasion the inconceivable indolence of the inhabitants: much, however, must at the same time be attributed to the richness of the soil, which precludes the necessity of labour by almost spontaneously producing the fruits of the earth. In fact, the people assist nature very little: we passed several vineyards in which the vines were suffered to trail upon the ground; whereas, if the branches were properly supported, the owner would be well rewarded by the superior quantity and quality of the produce.

The uncleanness of the common people is disgusting beyond expression. I have just been holding a conversation upon this subject with my landlord; though himself a notorious example, he severely censured the dirtiness of his countrymen, and seemed to assign it as one cause of *goiters*. This assertion induced me to examine the person of my host with somewhat more attention; and I was rather disappointed to find, that he proved an exception to his own remark. Let me not, however, be understood as insinuating that the inhabitants in general are either goitrous, idiots, indolent, or dirty; like that traveller who asserted, that all the women of a certain town were crooked, red-haired, and pitted with the small pox, because his landlady happened to be so. Indeed, I look upon national reflections in general to proceed from the most illiberal turn of mind, and have always been cautious not to judge of the physical or moral character of any people from a partial and superficial view. But the prevalency, in the present instance, of *goiters* and idiocy, and the general dirtiness and indolence of the common people are too notorious to escape the observation of the most careless traveller.

Sion is situated near the Rhone, at the foot of three insulated rocks, that rise immediately from the plain. The highest, called Tourbillon, supports the ruins of the old episcopal palace, still containing two or three untenanted apartments, in one of which are the portraits of the several bishops. On the second rock, denominated Valeria, are observed the remains of the old cathedral, and a few houses belonging to the canons. On Mayoria, the third rock, stands the episcopal palace, an ancient edifice of stone, built in 1547. On seeing the apartments I was greatly struck with their plainness, and could not avoid reflecting with pleasure on the simplicity of manners which must necessarily prevail in this country; when the rooms inhabited by the sovereign, instead of bespeaking the magnificence of a court, are scarcely superior to the dwelling of a peasant. Two apartments principally engaged my attention. The first is that in which the diet assembles: at the upper end are two armed chairs for the bishop and the *lands-*

hauptmann, and on each side a row of smaller seats for the deputies of the seven *dixains*. The other apartment is the hall, in which the bishop holds his court, like the feudal lords of ancient times; at the further extremity is a raised seat, called a throne, surrounded by a wooden balustrade, and, as an incitement to wisdom and impartiality, the figures of Justice, and Solomon's Judgment are coarsely painted upon the walls*.

Sion is an ancient town, and was formerly the capital of the *Seduni*, who inhabited this part of the country in the time of Julius Cæsar. A few remaining inscriptions still prove its antiquity; and, among others so obliterated that I was not able to decypher them, I observed one which was more legible: it is in honour of the Emperor Augustus, during his eleventh consulship. In this inscription the town is called *Civitas Sedunorum*.

At Sion we parted with our horses and guides, who had accompanied us from Ait-dorf; and procured a piece of luxury, to which we had been for some time unaccustomed, I mean a coach. But, notwithstanding the concentrated heat of the climate, and the great sultriness of the air, I prefer riding or walking, as by that means I enjoy a more unobstructed view of the country: indeed the scenes are so beautiful, and so perpetually changing, that the attention is incessantly engaged by a variety of new objects.

On entering the Lower Vallais, I perceived as much uncleanness, but a greater appearance of industry; and I am informed that the natives are not altogether so indolent as the inhabitants of Sion and its environs.

This imputation of indolence will not hold good with respect to all the inhabitants of the Upper Vallais: for in the eastern part of that district, which we entered after having crossed the Furca, the soil, though far inferior, was much better cultivated, and the people seemed more industrious. Some physical reasons may be assigned for this difference; for *there* the weather is not so sultry, the water is not unwholesome, the air re-

* Soon after the capture of Pern, the attempts to introduce the new constitution created great dissatisfaction among the natives of the Upper Vallais. But the Bishop of Sion, who was then in the power of the French, was under the necessity of affecting great pleasure at the overthrow of his sovereignty. The *Moniteur* has preserved his letter on this occasion to the French Resident Mangourit, and the answer.

"Citizen Resident, I have learnt with extreme satisfaction, that the plan of a constitution for the republic of the Vallais, guarantees, under your auspices, to my diocese the preservation of the catholic, apostolic, and Roman religion, in all its purity. I want words to testify the most lively gratitude; and I doubt not but our religion will be a restraint on my flock, and inspire it with an implacable hatred of licentiousness and anarchy.

"Take, I beseech you, Citizen, under your powerful protection the church of Sion and all the clergy, of whom the greater part, particularly our chapter, in seconding my intentions, and executing my orders, have distinguished themselves by a conduct calculated to inspire the people with confidence in their worthy representatives, and to re-animate the love of their country.

(Signed)

"ANTHONY, Bishop of Sion."

Answer of Mangourit.

"Athanasius closed the doors of his church against the crimes of Theodosius; you have opened yours to civic virtues, by facilitating the acceptance of the constitution of the Vallais.

"At your voice the canons of Sion repaired to the seven upper *dixains*, to prevent the people from being misled by malevolence.

"Glory be to your humanity!

"Schinner, one of your predecessors, occasioned the effusion of much blood; you, Citizen Bishop, you love to spare bloodshed.

"An article of the constitution guarantees to your flock the maintenance of their religious opinions.

"Your wise conduct secures to you for ever the homage of the friends of liberty, of wisdom, and of peace." *Moniteur*, 15th Germinal.

markably salutary, and we did not observe any of those goitrous persons or idiots, common in the midland parts.

We stopped at the village of Martigny, which, according to antiquaries, was the ancient *Octodurum*. It is said, that near this place may be traced the site of Sergius Galba's camp, one of Julius Cæsar's lieutenants, who was sent to subdue the *Veragri*, the *Nantuates*, and the *Seduni*; the ancient inhabitants of these districts. It seems evident indeed from Cæsar's description, in the third book of his Commentaries, that *Octodurum* could not be far from the present situation of Martigny, which stands in a small plain, encircled by high mountains, and divided by the Dranse, that falls into the Rhone. I cannot, however, ascertain from my own observation, whether any traces of a Roman encampment still remain, nor could I gain the least information from the inhabitants; so that the conjecture concerning the situation of *Octodurum* rests only upon the faith of antiquaries, and on the general position of the country.

Martigny is a place much frequented by travellers: it leads to the valley of Chamonny, to St. Maurice, and the lake of Geneva, and is the passage of the merchandize which is conveyed over the Great St. Bernard into Italy. Near Martigny we passed under the majestic ruins of La Bathia, an old episcopal castle, crowning the summit of a craggy rock, and impending over the impetuous Dranse. The road from hence to St. Maurice runs under a chain of rocks, the Rhone flowing at a small distance through the middle of a fertile vale. Having crossed the Trient, a turbid torrent which issues from a narrow and obscure glen, remarkable for its rugged and romantic scenery, we arrived at the Pisse-Vache, a cataract much noticed by travellers. The characteristic beauty of this fall is, that it seems to burst from a cleft in the middle of the rock, through hanging shrubs, and forms a perpendicular column about two hundred feet in height. The body of water being very ample, and the elevation not so considerable as to reduce it entirely into spray, render the effect very striking. I enjoyed also the additional pleasure of seeing the sun rise opposite to this water-fall. The regular expansion of the rays enlivening the different parts of the column of water; and the gradual descent of the rainbow formed by the spray, were inexpressibly beautiful. These torrents are my delight; but perhaps they recur too often in my letters to continue to be yours. Formerly travellers passed close to the Pisse-Vache; but a few years ago part of the rock falling down totally obstructed the road, which now runs through the middle of the valley.

At the extremity of the Lower Vallais, the two chains of mountains that bound this country approach towards the Rhone, which nearly fills the interval between. In this spot is situated the town of St. Maurice, built almost totally upon the rock at the foot of some steep mountains, and at a small distance from the river. The ancient appellation was *Agaunum*: that of St. Maurice is derived from an abbey, erected in the beginning of the sixth century by Sigismund King of Burgundy, in honour of a saint, who is supposed to have suffered martyrdom in this place; he was the leader of the famous Theban legion, said to have been massacred by order of the Emperor Maximin, for not renouncing Christianity. This history has given rise to much controversy: while some authors have treated it as a mere forgery, others have contended for its authenticity with as much zeal as if the truth of Christianity depended upon the decision. Without entering into the merits of the question, I cannot but remark, that the cause of Christianity has suffered more from weak and imprudent defenders, than from the sharpest attacks of its most inveterate adversaries. Indeed, the question concerning the number and sufferings of the martyrs has occasioned much idle disputation: should we reduce the popular accounts of both within the bounds of probability, there will still remain suf-

sufficient evidence of the wonderful constancy and calm resolution of those primitive victims; and whether a hundred thousand, or only fifty, suffered, Christianity will equally stand upon the same immovable foundation. Nor is the inquiry more material concerning the motives that actuated its powerful and cruel adversaries. It matters not whether Decius ordered the Christians to be massacred, because they had been favoured by his predecessor Philip, or from his attachment to the Pagan rites; whether Maximin persecuted them from interested motives; Dioclesian as introducing innovations in his government; or whether Constantine protected them from conviction or policy. For the truth of Christianity is in no respect affected either by the imprudence of its early professors (if with any they were justly chargeable), or the political reasons that influenced the conduct of those emperors.

A few Roman inscriptions, chiefly sepulchral, and two defaced columns, are the only uncontroverted remains of the antiquity of St. Maurice. It is principally distinguished as being the chief entrance from the canton of Bern into the Vallais. This entrance is formed by a narrow pass, so strongly fortified by nature, that a handful of men might defend it against a considerable army. The stone bridge over the Rhone is much admired for its bold projection: it is of a single arch, and the span is a hundred and thirty feet. Half of this bridge belongs to the Vallais, and the remainder to the canton of Bern*. I am, &c.

LETTER XXXV.—Of the Vallais.—Goiters and Idiots.

Trient, August 22.

I AM now writing from the village of Trient, on my way to Mont Blanc and the alps of Savoy. From the mountain of the Furca, its eastern boundary, two vast ranges of alps enclose the Vallais: the southern chain separates it from the Milanese, Piedmont, and part of Savoy; the northern, from the canton of Bern. These two chains in their various windings, form several small vallies, watered by numerous torrents that rush into the Rhone, as it traverses the whole district from the Furca to St. Maurice. A country thus entirely enclosed within high alps, and consisting of plains, elevated valleys, and lofty mountains, must exhibit a great variety of situations, climates and productions. Accordingly, the Vallais presents to the curious traveller a quick succession of prospects, as beautiful as diversified. Vineyards, rich pastures covered with cattle, corn, flax, fruit-trees, and forests, occasionally bordered by naked rocks crowned with everlasting snow.

The productions of the Vallais vary according to the great diversity of climates by which this country is distinguished. It supplies more than sufficient wine and corn for interior consumption, and exports a considerable quantity of both; the soil in the midland and lower districts being exceedingly rich and fertile. In the plain, where the heat is collected and confined between the mountains, the harvest is usually finished in

* At an early period of the French revolution, the disaffected party of the Lower Vallais appealed to France to emancipate their country from their subjection to the Upper Vallais, but the French not having matured their scheme of fraternization, their petition was rejected.

In February 1798, however, the people of the Lower Vallais were enfranchised, and admitted to an equality of rights by the Upper Vallais; but after the conquest of Bern, and the revolution of the greater part of Switzerland, the inhabitants of the Upper Vallais rejected the new constitution, took up arms, and defended themselves with great spirit. After several bloody defeats, and the capture of the castle of Sion, which was stormed by the French, the natives submitted, and both districts were moulded into one department called the Vallais, of which the capital is Sion.



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- { Wetterhorn

July; whereas, in the more elevated parts, barley is the only grain that can be cultivated with any success, and the crop is seldom cut before November. About Sion, the fig, the melon, and all the other fruits of Italy, come to perfection: in consequence of this singular variety of climates, I tasted in the same day, strawberries, cherries, plums, pears, and grapes; each the *natural* growth of the country.

There are no manufactures of any consequence; and indeed the general ignorance of the people is no less remarkable than their indolence; so that they may be considered in regard to knowledge and improvements, as some centuries behind the Swiss, who are an enlightened nation. The peasants seldom endeavour to ameliorate those lands where the soil is originally bad, or to draw the most advantage from those which are uncommonly fertile; having few wants, and being satisfied with the spontaneous gifts of nature, they enjoy her blessings without much considering in what manner to improve them.

Before I take leave of the Vallais, I shall communicate the result of my enquiries concerning the causes which contribute to render goitrous persons and idiots common in these parts; premising, at the same time, that I must stand greatly in need of your candour, when I venture to treat a subject so extremely complicated, and on which so many different opinions have been advanced by naturalists and physicians.

The notion that snow-water occasions goiters, is totally void of foundation; for on that supposition, why are they common in the midland and lower parts, and extremely rare in the higher regions of Switzerland? particularly what reason can be assigned, why the natives of those places that lie most contiguous to the glaciers, and who drink no other water than what descends immediately from those immense reservoirs of ice and snow, are not subject to this malady? Why are the inhabitants of those countries in which there is no snow, afflicted with it? For these guttural tumours are to be found in the environs of Naples, in the island of Sumatra, and at Patna and Purnea, in the East Indies, where snow is unknown.

But, instead of repeating the various opinions on this subject, I shall at present confine myself to the result of my own observations and inquiries.

The springs of this district are impregnated with a calcareous matter, called in Switzerland *tuf**, nearly similar to the incrustations of Matlock in Derbyshire, so completely dissolved as not to affect the transparency of the water. Will it be deemed improbable, that the impalpable particles of this substance should thus introduce themselves, by means of the blood, into the glands of the throat, and produce goiters†? I ground this opinion on the following observations and facts:

* The Porus of the older authors

The *Tophus glareoso, argillaceus* Polymorphus, of Linnæus, 186. 1.

The *Tophus Polymorphus* of Wallerius, Syll. vol. ii p. 394.

The *Tophi* of Kirwan, p. 25, called *Duckstein* by the Germans.

† Dr. Baillie, physician to St. George's Hospital, has lately given a beautiful plate illustrative of the diseased appearances of the Thyroid Gland, which is the seat of the Bronchocele, or Goiter. "When a section is made," he says, "of the thyroid gland affected with this disease, it is found to contain a number of cells filled with a transparent viscid fluid. This fluid becomes solid, like jelly, when the gland has been preserved for some time in spirits." He notices too, that a few of the cells of one gland, which he divided, were filled with a gritty, hard, whitish matter.

It appears also that the structure of the thyroid gland is favourable to the deposition and detention of stony particles carried into it by the blood; for it is supplied by four arteries, uncommonly large in proportion to the size of the gland, and has no excretory duct, through which any substance once deposited can pass. Hence a very inconsiderable deposition of *tuf* might be sufficient to produce by irritation such an abundant secretion of viscid fluid as to dilate the cells, and by this enlargement of the gland, gradually to occasion goiters. *Baillie's Morbid Anatomy*, p. 311. *Second Fasciculus, plate I.*

To speak in general: during my travels through Europe, I never failed to observe that *tuf*, or this calcareous deposition, abounds in all those districts wherein goiters are common. I noticed goitrous persons and much *tuf* in Derbyshire, in various parts of the Vallais, in the Valteline, at Lucern, Friburgh, and Bern, near Aigle and Bex, in several places of the Pays de Vaud, near Dresden, in the valleys of Savoy and Piedmont, near Turin and Milan.

To descend to particular instances. The inhabitants of Friburgh, Bern, and Lucern, are much subject to guttural excrescences. With respect to Friburgh, I observed that one of the principal springs which supplies the town with water, issues from a neighbouring stone-quarry, and has formed large depositions of *tuf* on the rock from which it bubbles. The pipes also which convey water to the public fountains at Bern, are charged with the same calcareous sediment; and a gentleman, on whose veracity I can depend, assured me, that he is subject to a small swelling in the throat, which usually increases in winter, when he is chiefly resident at Bern, and diminishes in summer on his removal to other places, where the waters are not loaded with *tuf*.

I was, moreover, informed by General Pfister, that at Lucern all the waters, excepting one spring, are impregnated with *tuf*, and that the natives who dwell near that spring, are much less subject to goiters than the other inhabitants; that the same difference is observed among the members of the same family, between those who drink no water but what is drawn from that spring, and the others who do not use that precaution. The general shewed me also the tin vessel, in which water was every morning boiled for his use, and which was so speedily and thickly incrustated as to render it necessary to have it cleansed twice a-week. The water which yields this deposition is as transparent as crystal*.

I also visited many places contiguous to those districts wherein goiters and *tuf* are frequent, and having precisely the same situation and climate, yet I observed no goiters among the inhabitants, nor any appearance of *tuf*.

But the strongest proof in favour of this opinion is derived from positive fact. A surgeon whom I met at the baths of Leuk, informed me, that he had not unfrequently extracted concretions of *tuf stone* from several goiters; and that from one in particular which suppurated, he had taken several flat pieces, each about half an inch long; the same substance, he added, is found in the stomachs of cows, and in the goitrous tumours to which even the dogs of the country are subject. He likewise assured me, that in the course of an extensive practice, he had diminished and cured the goiters of many young persons by emollient liquors and external applications; that his principal method to prevent them in future consisted in removing the patients from the places where the springs are impregnated with *tuf*, and, if that could not be contrived, by forbidding the use of water which was not purified. He confirmed the report that infants are occasionally born with guttural swellings, particularly those whose parents are goitrous, and remarked that one of his own children had at its birth a goiter as large as an egg; neither he nor his wife, who were both foreigners†, were afflicted with that malady. He had dissipated it by external remedies; and since that period, had inva-

* Although it appears that wherever there are goiters there is *tuf stone*; yet the reverse is by no means true, that wherever the waters deposit *tuf*, there are *always* goiters: for perhaps the natives do not drink of the springs which are loaded with *tuf*, or that substance is not sufficiently dissolved in the waters; absolute solution being, perhaps, necessary to produce these swellings.

† In the former instance, goiters may, though perhaps erroneously, be esteemed hereditary; but in the latter, where the parents are both foreigners and not goitrous, can scarcely be derived from any other cause than the aliment of the mother.

riably prohibited his family from tasting the spring waters, unless they were distilled, or mixed with wine or vinegar; by which means he preserved them from those tumours that were extremely common among the natives of the town which he inhabited.

Although it is by no means my intention to trouble you with the various opinions which have been advanced on this subject; yet it would be unjust to withhold that of M. de Saussure, whose accurate researches and profound investigation on philosophical subjects deserve to be weighed with the greatest attention. That able naturalist, in a recent publication*, attributes the production of goiters not to the waters, but principally to the concentrated heat of the climate, and stagnation of the air. He informs us, that in all his travels through the Alpine countries, he never observed goiters in any places which are elevated more than 500 or 600 toises† above the level of the sea: he noticed them in those vallies where the heat is concentrated, and the air stagnates, and that they usually cease wherever the valley terminates, and the country expands into a large plain. With great deference, however, to his opinion, may I be permitted to observe, that the conclusion does not absolutely follow from these premises? For it may be remarked, that in places elevated more than 500 or 600 toises above the level of the sea, the springs are too near their sources to have dissolved a sufficient quantity of calcareous matter, or so minutely as may be requisite for the generation of goiters; that when the valley expands into a plain, the waters may deposit their sediment by mixing with the rivers and lakes, or by filtrating through the earth and gravel. But although the two causes mentioned by Saussure do not solely produce, they may *assist* in producing guttural excrescences, by relaxing the fibres, and disposing the glands of the throat to admit more easily the introduction of the impalpable particles in the water. For it is observable, that women and children, whose frames are more relaxed than those of men, are more liable to be afflicted with these swellings; that the natives of those districts most remarkable for the size and number of goiters, are extremely wan and livid, much subject to intermitting fevers, and other disorders judged to proceed from relaxation. Although the concentrated heat, and stagnation of the air, may be allowed to have considerable influence on the human body, yet they do not seem sufficient for the effect in question, without the intervention of some other cause: this cause *seems* to be the water, should the facts already stated prove consonant to truth and experience.

It may be necessary, however, to obviate an objection, that goiters must rather originate from climate and situation; because foreigners established in the country are *never* afflicted with those tumours, while their children are no less subject to them than the natives. But is it uncontrovertible, that *no* foreigner has ever been afflicted with this malady? The question, I should presume, can scarcely be replied to in the affirmative. And all that can be established, with any degree of certainty is, that foreigners are *less* subject to these swellings than their children or the natives. In this respect the answer is evident. Persons who usually settle in foreign countries are adults; and adults are doubtless much less liable than children to an endemial malady, whose operation is gradual, and which requires much time before its effects are visible. It is remarked, that among the natives themselves those persons who have escaped this disorder during their infancy, are seldom attacked by it to any considerable degree at a more advanced age.

In reasoning upon this, as well as on similar subjects, where a cause is sought for capable of producing a certain effect, it is necessary to establish a primary and general cause, which *always* and *necessarily* exists, wherever that effect is produced, and to exclude those circumstances which do not *always* and *necessarily* exist, wherever that effect is produced.

* See Voyages dans les Alpes, ch. 48. vol. ii. p. 480.

† 3,200 and 3,840 English feet.

Thus, in the present instance : if snow-water occasions goiters, wherever there are goiters there *must* be snow-water, which is contrary to fact and experience. If the concentrated heat of the climate, and stagnation of the air, are *necessary* to the formation of goiters, those excrescences could never be formed where these causes are wanting, which is not confirmed by fact and experience. If waters impregnated with *tuf*, or with certain calcareous substances, produce goiters ; wherever there are goiters, the natives must drink waters so impregnated, and this *seems* agreeable to fact and experience *.

The same causes which generate goiters, *probably* operate in the case of idiots ; for wherever goiters prevail to a considerable degree, idiots invariably abound : such is the nice and inexplicable connection between our bodies and our minds, that the one ever sympathises with the other ; and it is by no means an ill-grounded conjecture, that the same causes which affect the body should also affect the mind, or, in other words, that the waters which create obstructions and goiters should also occasion mental imbecility†.

Although these idiots are frequently the children of goitrous parents, and have usually those swellings themselves, yet they are sometimes the offspring even of healthy parents, whose other children are properly organized, and are themselves free from guttural excrescences. I observed several children, scarcely ten years of age, with very large goiters. These tumours, when they increase to a considerable magnitude, check respiration, and render those who are afflicted with them exceedingly indolent and languid. Some persons have, in opposition to the opinion which I have ventured to advance, supposed that the small glandular swellings, which are common in many other parts, and the large excrescences, are more particularly observed in the Vallais, in the valley of Aost, and in some other places, do not proceed from the same cause, and are not the same disorder. But sufficient reasons have not been assigned for this opinion. During my expedition through the Vallais and other parts of Switzerland, I noticed some of all proportions, from the size of a walnut to almost the bigness of a peck loaf. As the same gradation may be also observed in the species of idiots ; by a similar mode of argument, those who possess some faint dawnings of reason might be discriminated from others, who are totally deaf and dumb, and give no proof of existence but the mere animal sensations. Whereas it is probable that in both instances the greater or lesser derangement of the body or mind does not indicate a different complaint, but only different degrees of the same complaint.

It is to be presumed, that a people accustomed to these excrescences will not be shocked at their deformity ; but I do not find, as some writers assert, that they consider them as beauties. To judge from the accounts of many travellers, it might be supposed that the natives, without exception, were either idiots or goitrous ; whereas, in fact, the Vallaisans in general are a robust race ; and all that with truth can be affirmed is, that goitrous persons and idiots are more abundant in some districts of the Vallais than perhaps in any other part of the globe ‡.

It

* The learned Mr. Whitaker, in his interesting account of the passage of Hannibal over the Alps, vol. i. p. 194, agrees with me in imputing the goiters to the waters, but to the waters impregnated with *metallic* particles, and he supports his opinion by the authority of Simler ; but surely if so, the metallic particles would have been constantly found in the waters, and *occasionally* in the glandular swellings, which is not the fact.

† It has been suggested to me, by a very intelligent physician, that perhaps the impalpable particles of stone may penetrate by means of the blood into the glands of the brain, and form concretions which may affect that organ. It is a well known fact, that earthy matter is frequently found in the pituitary gland.

‡ I cannot withhold from the reader a curious passage on goitrous persons and idiots, from an interesting work published since my letters, which tends to confirm my remarks on this subject.

It has been asserted also that the people very much respect these idiots, and even consider them *as blessings from heaven*; which is strongly contradicted by others. Upon my questioning some gentlemen of this country, at the baths of Leuk, they treated the notion as absurd and false; but whether they delivered their real sentiments, or were unwilling to confirm what might lower their countrymen in the opinion of a stranger, will admit perhaps of some doubt. For having since that time frequently enquired among the lower ranks, I am convinced that the common people esteem them blessings. They call them "*Souls of God, without sin*:" and many parents prefer these idiot-children to those whose understandings are perfect; because, as they are incapable of intentional criminality, they consider them as certain of happiness in a future state. Nor is this opinion entirely without its good effect, as it disposes the parents to pay greater attention to such helpless beings. These idiots are suffered to marry, as well among themselves as with others. I am, &c.

EXTRACT from SAXO GRAMMATICUS, formerly referred to.

NEC silentio implicandum, quod sequitur. Toko quidam aliquamdiu regis (i. e. Harald-Blaatand) stipendia meritis officiis quibus commilitones superabat complures virtutum suarum hostes effecerat. Hic forte sermone inter convivas temulentius habito tam copioso se sagittandi usu callere jactitabat, ut pomum quantumcunque exiguum baculo e distantia superpositum, primâ spiculi directione feriret. Quæ vox primum obtrectantium auribus excepta regis etiam auditum attingit. Sed mox principis improbitas patris fiduciam ad filii periculum transfudit, dulcissimum vitæ ejus pignus baculi loco statui impetrans. Cui nisi promissionis auctor primo sagittæ conatu pomum impositum excussisset, proprio capite inanis jactantiæ poenas lueret. Urgebat imperium regis militem majora promissis edere, alienæ obtrectationis insidiis parum sobriæ vocis jactum carpentibus, &c.—

Exhibitum Toko adolescentem attentius monuit, ut æquis auribus capiteque inflexo quam patientissime strepitum jaculi venientis exciperet, ne levi corporis motu efficacissimæ artis experientiam frustraretur. Præterea demendæ formidinis consilium circumspiciens, vultum ejus, ne viso telo terretur, avertit. Tribus deinceps sagittis pharetrâ expositis prima quam nervo inferuit proposito obstaculo incidit.—

Interrogatus autem a rege Toko cur plura pharetræ spicula detraxisset, cum fortunam arcus semel duntaxat experimento prosequi debuisset. "Ut in te," inquit, "primum errorem reliquorum acumine vindicarem, ne mea forte innocentia poenam tui impunitatem experiretur violentia. Quo tam libero dicto et sibi fortitudinis titulum deberi docuit, et regis imperium poena dignum ostendit."—Lib. x. p. 286. edit. Leipzig, 1771.

"Goiters and idiots are very common in that part of Tartary which borders upon the Chinese Wall. Both sexes are subject to these swellings, but females more than males; the latter removing oftener from the spots where the causes exist, whatever they may be that occasion them.

"These preternatural tumours did not appear to be attended with any other symptoms affecting the general health or corporal functions of those in whom they were observed. But the minds of many of them were much weakened, and perhaps of all in a less degree. Some were reduced to a state of absolute idiocy. The spectacle of such objects, which fails not to convey a serious and even melancholy impression to persons who view them for the first time, produces no such effect upon those among whom they are bred. The objects themselves are, in their general habits, cheerful, and lead a mere animal life, as contradistinguished from that in which any thought or reflection is concerned. As they act alone from instinct, or the mere impulse of the senses, so their actions, however injurious they may happen to prove to others, are free from intentional malice, and occasion no resentment. Their persons are considered in some degree as sacred; and they are maintained by their families with peculiar care."—*Account of the Embassy to China, vol. ii. p. 202.*

LETTER XXXVI.—*Passage of the Tête Noire.—Col de Balme.—Mont Blanc—Its great Elevation.*

Geneva, August 28.

QUITTING Trient, we traversed some narrow vallies, through forests of pine and fir, by the side of a small but impetuous torrent, which takes its rise from the neighbouring glacier. The road, which is very rugged, is carried over the steep crags of a mountain called *La Tête Noire*. A little way from Trient we entered the duchy of Faucigny, subject * to the King of Sardinia, and arrived at the vale of Chamouny, the great mountains and glaciers of Savoy rising majestically before us.

Another way leads from Trient to Chamouny over the *Col de Balme*. I passed it on a mule the 7th of September 1785; it is exceedingly steep, but not dangerous, as represented by many travellers; for I did not even find it necessary to dismount; and the path, which is in no part bare rock, runs through a thick wood clothing the sides of the mountain. We set off from Trient on this expedition about half past four, with the expectation of seeing the sun rise on the summit of Mont Blanc, but were disappointed; for we did not reach the Col de Balme in less than two hours, and day had already begun to break. We enjoyed, however, from the summit an extensive prospect, which many travellers consider as equal to the most sublime prospects in Switzerland: on one side it commands the Vallais, the Alps of St. Bernard, and the distant mountains of the cantons of Underwalden and Bern; the other comprehends Mont Blanc and the circumjacent heights. I observed the *Point de Mousson*; the *Mortine*, supporting on its top the glacier of *Buet*, on which De Luc made his celebrated experiments to ascertain the state of the atmosphere; the *Point de la Tour*; *Les Aiguilles d'Argentiere*; the *Aiguille de Midi*, a piked rock starting out of a large mass of snow; and, lastly, *Mont Blanc* itself. The highest point of this gigantic mountain is in the shape of a compressed hemisphere, and is called from its form *La Bosse du Dromedaire*; from that point it gradually sinks, presents a kind of concave surface of snow, in the midst of which is a small pyramid of ice; then rises into a second hemisphere, called by some *Little Mont Blanc*, but with more propriety by others, *Le Dôme du Milieu*, or the *Middle Dome*; thence it descends into another concave surface terminating in a point, indiscriminately styled by the natives *Aiguille de Gouté*, *Point de Gouté*, and *Dôme de Gouté*, and which I shall name the *Dôme of Gouté*; from that dome it ends abruptly, and loses itself amid the mountains that bound the vale of Chamouny.

Mont Blanc is particularly distinguished from other mountains by a mantle of snow, which clothes its summit and sides, almost without the intervention of the least rock to break the glare of the white appearance, from whence its name is derived. This circumstance frequently deceives the eye unaccustomed to such objects, and in many situations renders it less lofty in appearance than it is in reality. Although the summit was more than seven thousand feet above the spot where I stood, yet it did not impress me with that astonishment which might be expected from its superior height and magnitude above the circumjacent mountains. I was indeed more struck with the first view of the Schreckhorn from the top of the Scheidec, than of Mont Blanc from the Col de Balme.

* Now subject to France.

The summit of Mont Blanc being of a roundish form, and covered with snow, unites beauty with grandeur; whereas the Schreckhorn being piked, naked, and its shagged sides only streaked with snow, its grand characteristics are ruggedness and horror; and hence it derives the name of Schreckhorn, or the *Peak of Terror* *. But Mont Blanc soon re-assumed its real importance, seemed to increase in size and height, and solely attracted our attention, until we entered the vale of Chamouny.

You who are totally unacquainted with Alpine scenes, may perhaps conceive a faint idea of the elevation of this gigantic mountain, on being informed that the mantle of snow, which appears to cover its top and sides, exceeds an altitude of four thousand feet perpendicular, and nine thousand feet in a horizontal direction from the *Dome of Gouté* to the summit; and that the height of the snow and ice, estimated from the source of the Arveron, at the bottom of the glacier of Montanvert, to the summit of Mont Blanc, cannot be less than twelve thousand perpendicular feet, or near three times as high as Snowdon in North Wales.

Five glaciers extend into this vale of Chamouny, and are separated from each other by forests, corn-fields, and meadows; so that large tracts of ice are blended with cultivation, and perpetually succeed each other in the most singular and striking vicissitude. These glaciers, which lie chiefly in the hollows of the mountains, and are some leagues in length, unite at the foot of *Mont Blanc*, the highest mountain in Europe, and probably of the antient world.

According to the calculations of De Luc, (by whose improvement of the barometer elevations are taken with a degree of facility and accuracy before unattainable,) the height of this mountain above the level of the sea is 2391½ French toises, or 15,304 English feet †; or, according to Sir George Schuckborough, of 15,662 feet.

De Luc having found the altitude of the *Buet*, from thence took geometrically the elevation of *Mont Blanc*. The labours of this celebrated naturalist, and his rules for computing heights by the barometer, are to be found in his very valuable treatise, "*Sur les Modifications de l'Atmosphère*." These rules are explained, and his tables reduced to English measure, by Dr. Maskelyne, Astronomer Royal; and still more fully by the Rev. Dr. Horsley ‡.

The accuracy of these barometrical measurements was verified by Sir George Schuckborough, in a number of ingenious experiments to ascertain the elevation of several mountains of Savoy, a short time before I arrived at Geneva. He followed De Luc's method; computed the heights of several mountains, reciprocally, by barometrical and geometrical observations, and perceived that they almost exactly coincided. Having found the elevation of the *Môle* above the lake of Geneva, he took from thence the geometrical altitude of *Mont Blanc*. During the course of these experiments, he was enabled to correct some trifling errors in De Luc's calculations, to improve his discoveries, and to facilitate the means of taking elevations, by simplifying the tables and rules.

* The traveller will recollect that I am here describing Mont Blanc, as observed from the Col de Balme, and the vale of Chamouny. Those who have seen it from the valley of Aost assure me, that it is not on that side covered with a mantle of snow, but exceeds even the Schreckhorn in ruggedness and horror.

† In reducing the French toise, which is equal to six French feet, to English measure, I have considered the proportion of the English to the French foot as 15 to 16. Its real proportion, according to the accurate calculation of Sir George Schuckborough, is 15 to 16 and a small fraction; but the error in my calculation being not one toise in a thousand, in order to prevent confusion, I have omitted the fraction.

‡ Now Bishop of Rochester. Both these treatises are published in the *Philosophical Transactions* for the year 1774.

I am convinced, from the situation of *Mont Blanc*, and its superior altitude above the surrounding mountains, that it exceeds the loftiest point in Switzerland, which is, next to *Mont Blanc*, the most elevated ground in Europe. That it is higher than any part of Asia and Africa, is an assertion which can only be proved by comparing the judicious calculations of modern travellers with the exaggerated accounts of former writers; and by showing that there is probably no mountain in those two quarters of the globe, whose altitude surpasses 15,000 feet.

Perhaps in no instance has the imagination of man been more given to amplification, than in ascertaining the heights of the globe. Gruner, in his description of the Swiss glaciers, has mentioned the elevation of some remarkable mountains, agreeably to the calculations of several famous geographers and travellers, both ancient and modern.

	Toises.	Eng. Feet.
According to Strabo, the highest mountain of the ancient world was about	3,411	21,830
According to Riccioli	58,216	372,382
According to Father Kircher, who took the elevations of mountains by the uncertain method of measuring their shadows,		
Ætna is	4,000	25,600
The Peak of Teneriff	10,000	64,000
Mount Athos	20,000	128,000
Lariffa in Egypt	28,000	179,200

But these calculations are evidently so extravagant, that their exaggeration must strike the most common observer. If we consult more modern and rational accounts, it appears that the Peak of Teneriff and Ætna have been frequently supposed the highest points of the globe. Teneriff is estimated by some natural philosophers to be 3,000 toises, or 19,200 feet above the level of the sea; but, according to Feuillé, this elevation is reduced to 2,070 toises, or 13,248 feet; whereas Ætna, by the accurate computations of Saussure, rises only * 1672 toises, or 10,700½ feet above the sea. Hence it appears, that there are no mountains, except those in America, (the elevation whereof, according to Condamine, surpasses 3000 toises, or 19,200 feet,) which are equal to the altitude of *Mont Blanc*.

In order, however, to determine with absolute certainty that *Mont Blanc* is the highest point of the old world, it would be necessary to estimate, by the same mode of mensuration, *Mont Blanc*, the *Schreckhorn*, the Peak of *Teneriff*, the mountains of the Moon in Africa, the *Taurus*, and the *Caucasus*.

* According to Sir George Schuckborough, 1,672 toises, or 10,954 feet; who says, "I have ventured to compute the height of this celebrated mountain from my own tables, though from an observation of M. De Saussure in 1773, which that gentleman obligingly communicated to me. It will serve to show that this volcano is by no means the highest mountain of the old world; and that Vesuvius, placed upon Mount Ætna, would not be equal to the height of *Mont Blanc*, which I take to be the most elevated point of Europe, Asia, and Africa."

I am happy to find my conjectures corroborated by that ingenious and accurate observer.

Height of Ætna, according to Sir George	10,954 Feet.
Of Vesuvius, according to Saussure	3,900
Of both together	14,854
Height of <i>Mont Blanc</i> , according to Sir George	15,662
Difference, or the height of <i>Mont Blanc</i> above that of Ætna and Vesuvius united	808

For still further information on this curious subject, the reader is referred to M. Trembley's *Analyse d'Experiences sur la Mesure des Hauteurs*, in Saussure's *Voyages dans les Alpes*, vol. ii. p. 616.

The chain of the Caucasus has long been deemed the highest mountains of Asia; and some philosophers, upon considering the great superiority of the eastern rivers over the European, both in depth and breadth, have drawn a presumptive argument, that the Asiatic mountains are much more lofty than those of Europe. But conjectures are now banished from natural philosophy; and, until it shall be proved from undoubted calculations, that the highest part of the Caucasus rises more than 15,000 feet above the level of the sea, Mont Blanc may be fairly considered as more elevated.

LETTER XXXVII. — *Glacier of Bossion. — Montanvert. — Expedition across the Valley of Ice.*

AUGUST 23d, we mounted by the side of the glacier of Bossion, to *les Murailles de Glace*, so called from their resemblance to walls: they form large ranges of ice of prodigious thickness and solidity, rising abruptly, and parallel to each other*. Some of these ranges appeared about a hundred feet high; but, if we may believe our guides, they are four hundred feet above their real base. Near them were pyramids and cones of ice of all forms and sizes, shooting to a very considerable height, in the most beautiful and fantastic shapes. From this glacier, which we crossed without much difficulty, we enjoyed a fine view of the vale of Chamouny.

The 24th. We had proposed starting forth this morning very early, in order to visit the valley of ice in the glacier of Montanvert, and to penetrate as far as the time would admit; but the weather proving cloudy, and likely to rain, we deferred our departure till nine. Having procured three guides, we ascended on horseback about three miles; we were then obliged to dismount, and scrambled up a steep and rugged path, called "the road of the *crystal-hunters*." From the summit of the Montanvert we descended to the edge of the glacier, and made a refreshing meal upon some cold provision which we brought with us. A large block of granite, called "*La pierre des Anglois*," served for a table; and near us was a hovel†, where those who make expeditions towards Mont Blanc frequently pass the night. The scene around us was magnificent and sublime; numberless rocks rising boldly above the clouds, some of whose tops were bare, others covered with snow; many of these peaks, gradually diminishing towards their summits, end in sharp points, and are called *Needles*. Between these rocks the valley of ice stretches several leagues in length, and is nearly a mile broad, extending on one side towards Mont Blanc, and on the other, towards the plain of Chamouny.

The names of the principal needles are, *Aiguilles de Midi, de Dru, de Bouchard, de Moine, de Tacul, de Charmeaux*; the five glaciers, that stretch towards the plain of Chamouny, and unite at the foot of Mont Blanc, are called *Tacona, Bossions, Montanvert, Argentiere, and Tour*.

Having sufficiently refreshed ourselves, we prepared for our adventure across the ice. We had each of us a long pole spiked with iron; and, in order to secure us from slipping, the guides fastened to our shoes *crampons*, or small bars of iron, provided with four spikes. The difficulty in crossing these valleys of ice arises from the immense chasms, which our guides assured us in some places are not less than five hundred feet in depth. I can no otherwise convey to you an image of this body of ice, broken into irregular ridges and deep chasms, than by comparing it to waves instantaneously frozen in the midst of a violent storm.

* In 1785, these *murailles de glace* no longer existed.

† Since my first expedition, Mr Blair, an English gentleman, has built a more commodious wooden hut, which, from him, is called Blair's Cabin.

We began our walk with great slowness and deliberation ; but gradually gaining courage and confidence, we soon found that we could safely pass along those places, where the ascent and descent were not very considerable, much faster even than when walking at the rate of our common pace : in other parts we leaped over the clefts, and slid down the steeper declivities. In one place we were obliged to tread with peculiar caution. After walking some paces sideways along a narrow ridge of ice, scarcely three inches broad, we stepped across a chasm into a little hollow, which the guides formed for our feet, and ascended by means of small holes made with the spikes of our poles. This account appears terrible ; but we had not the least apprehension of danger, as the guides were exceedingly careful, and took excellent precautions. One of our servants had the courage to follow us without *crampons*, or nails in his shoes, which was certainly dangerous, on account of the slipperiness of the leather when wetted.

We had now almost reached the opposite side, when we were obliged to make a circuit of above a quarter of a mile, in order to get round a broad chasm. This will give you some idea of the difficulty attending excursions over some of these glaciers : our guides informed us, that when they hunt chamois and marmots, these unavoidable circuits generally carry them six or seven miles, when the direct distance is scarcely two. A storm threatening every moment, we were obliged to hasten off the glacier ; for rain renders the ice exceedingly slippery, and in case of a fog, which generally accompanies a storm in these upper regions, our situation would have been extremely dangerous. Indeed we had no time to lose ; for we had scarcely quitted the ice before the tempest began, and soon became very violent, attended with frequent flashes of lightning, and loud peals of thunder, which being re-echoed within the hollows of the mountains, added greatly to the awful sublimity of the scene.

We crawled for a considerable way upon our hands and feet along a steep and bare rock, and down one of the most difficult and rugged precipices I ever descended in Switzerland ; the thunder at the same time roaring over us, and the rain pouring down like torrents. After much difficulty, but without the least accident, we gained the valley of Chamouny, and returned to the inn, as wet as if we had been plunged into water, but perfectly gratified with our expedition.

In my second excursion to the valley of Chamouny in 1785, instead of crossing the glacier, I ascended, in company with three Englishmen and a Swiss gentleman, from Blair's Cabin, about an hour and a half, over the bare and rugged rocks, to a summit under the *Aiguille de Charmox*, near the spot from which a Genevan unfortunately fell and was dashed to pieces. On this summit, at the very edge of the fearful precipice which overlooks the vale of Chamouny, stood a collection of stones, about three feet high, called by the natives *le bon homme*. We immediately raised this heap to the height of six feet, and piled up another of the same elevation, which we styled, in the language of the country, *le monument de quatre Anglois*, in memory of the four* Englishmen who amused themselves in forming it.

I employed an hour in ascending part of the Montanvert on horseback, the same time in walking up to Blair's Cabin, an hour and a half to the *monument de quatre Anglois*, half an hour in descending to Blair's Cabin, and three quarters of an hour in passing from thence to Chamouny.

* Mr. Whitbread, the two Mr. Wiffords, and myself. We were accompanied and assisted by M. Exchaquet, a Swiss gentleman, remarkable for his numerous expeditions into these Alps.

I made this expedition in company with M. Exchaquet, a Swiss gentleman, native of Aubonne, and director-general of the mines of Savoy. His repeated expeditions into these regions have enabled him to execute a model in relief of the valley of Chamouny, Mont Blanc, the circumjacent Alps, and glaciers *. In order to render this model still more valuable to the naturalist, he collects specimens of the different stones which compose the mountains represented on the plan. He is now employed by the government of Bern in constructing a model of the district of Aigle.

M. Exchaquet has discovered a more commodious route than that hitherto followed, to ascend the Buet and Mount Breven, which are described by M. Van Berchem, secretary to the Society of Sciences at Lausanne, in his letter † to Mr. Wyttenbach of Bern, relating an expedition to the mines of Faucigny, and the glaciers which extend at the foot of Mont Blanc. In these letters the reader will find, beside much accurate and picturesque description, an account of several fossil and vegetable productions of the higher Alps.

LETTER XXXVIII.—*Excursion towards the Summit of the Couvercle.*

IN my subsequent expedition to the valley of Chamouny, I proposed pushing my course still further towards the glacier of Talefre, but particularly to the Couvercle, of which I had read a very curious description in Saussure's work. But having bruised my foot in ascending the Montanvert, I was prevented from executing my purpose. You will, however, have no reason to regret my disappointment, on receiving the following account of that expedition, extracted from notes communicated by a friend.

We quitted the Priory at six in the morning, accompanied by Michael Paccard and Marie Coutet, two guides of Chamouny, traversed the plain, and ascended the Montanvert through a wood of pines. We had fine views of the glacier which gives rise to the Arveron, and of the vale of Chamouny, chequered in a most singular manner with alternate rows of arable and pasture land. After continuing about an hour, we quitted our mules, proceeded on foot, and in an hour and a half reached Blair's Hut, on the top of the Montanvert, where we rested for a few minutes.

We then descended to the glacier, coasted it by the path of the chrystal hunters, and in about half an hour came to some difficult passes called *Les Ponts*, or the Bridges, which run over a perpendicular rock, at the edge of a frightful precipice. These passages, though still difficult, were extremely dangerous, until, by order of Saussure, the rock was in some parts blown away with gunpowder, and small holes formed for the hands and feet. The first bridge was about forty paces in length, and the two others somewhat less difficult, of about ten paces each. In a quarter of an hour we arrived at a fountain, which drops from the roof and sides of a natural grotto, the inside whereof is overgrown with large tufts of the *ranunculus glacialis*. Having walked about eight miles since our departure from Chamouny, we sat down in this sequestered grotto and made our first repast.

From hence we crossed some snow, the remains of the last winter's *avalanche*, and immediately got upon the *Moraine*, the term given to the stones and earth which the glaciers disgorge on each side, after having received them from the impending moun-

* This plan has been finished, and a coloured print of it published.

† *Excursion dans les Mines de Haut Faucigny, &c.* Lausanne, 1787.

tains : they are very treacherous and difficult to walk upon. The ice upon which these stones rest is harder than that of the rest of the glacier ; and the earth is laid in such regular and equable heaps as to give the appearance of art. As we looked from hence over the valley of ice, the passage seemed impracticable ; so numerous and broad were the chasms which intersected it in every direction, many bearing a tremendous appearance, and of an astonishing depth ; but we soon found that it only required courage and activity. Instead of *crampons* we had large nails in our shoes, which more effectually answered our purpose, and our spiked sticks were on this occasion particularly serviceable. Having descended upon the glacier, we found the ice softened by a warm wind, which rendered it less slippery than usual. We continued along it about a quarter of an hour, then regained and walked along the Moraine near half an hour. We now embarked upon the great valley of ice called *Glacier des Bois*, I own not without emotion to see ourselves upon this extraordinary desert, broken into frightful chasms, through the maze of which we were to pass. It was curious to observe the numerous little rills produced by the collection of drops occasioned by the thawing of the ice on the upper part of the glacier : these little rills hollow out some channels, and torrent-like precipitate themselves into the chasms with a violent noise ; increasing the body of waters formed by the melting of the interior surface, and finding an outlet under the immense arch of ice in the valley of Chamouny, from which the Arveron rushes. This ice-water was agreeable to the palate, and extremely refreshing from its coolness.

The field of ice, which at first sight seemed impervious to all but the chamois and marmot, and scarcely practicable even for the daring footsteps of man, is traversed by flocks of sheep, driven to the scanty pasturage which the opposite rocks afford. The shepherds leave them in these desolate spots, and visit them at different intervals. We observed their track over the ice, and saw a flock returning ; one shepherd preceded as a guide, and another followed the herd : we had the good fortune to preserve a sheep which had strayed from the flock.

As we were continuing our course, we were surprised by a loud noise ; and, looking round, perceived a large fragment of rock which had detached itself from one of the highest needles : it bounded from precipice to precipice with great rapidity, and, before it reached the bottom, was reduced almost entirely into dust. Having proceeded about an hour, we were astonished with a view far more magnificent than imagination can conceive : hitherto the glaciers had scarcely answered my expectations, but now far surpassed them. Nature clad herself in all her terrors. Before us was a valley of ice twenty miles in extent, bounded by a circular glacier of pure unbroken snow, called *Tacu*, which leads directly to the foot of Mont Blanc, and is surrounded by large conical rocks, terminating in sharp points like the turrets of an ancient fortification ; to the right rose a range of magnificent peaks, their intervals filled with glaciers ; and far above the rest, the majestic summit of Mont Blanc, his highest point obscured with clouds. He appeared of such immense magnitude, that at his presence the circumjacent mountains, however gigantic, seemed to shrink before him, and “ *hide their diminished heads* *.” In half an hour we arrived at the Moraine, which forms a boundary of the valley, crossed it, and proceeded upon a body of ice about three quarters of a mile broad. Here the ice was more even and free from chasms than in the great valley. We then passed a second Moraine, and beyond that another mass of ice to a third Moraine : de-

* Milton.



ascending from thence we came upon the last ridge of ice, considerably broader than the two former, and full of large chafins : it is separated from the rock only by a very narrow Moraine. These Moraines contain great quantities of chrystal.

Here we turned a little to the right, and ascended the valley of ice, the scene every moment increasing in magnificence and horror. In a short time we arrived at the foot of the Couvercle, having walked about six miles on the ice. We now found it difficult to quit the ice, and the first part of the descent was really perilous. One step was truly dreadful : a bulging rock entirely smooth, and presenting a precipice of very considerable depth, which was terminated by an immense chasm in the ice, seemed to forbid our progress ; a small hollow, however, in the middle served for one foot, and from thence we bounded over to the firm ground. One guide went first, and held out his hand on the opposite side, whilst the other helped and directed us where to place our feet. We continued ascending a path which now seemed without danger, though very narrow and steep, and carried along the ridge of precipices. The scenery around was indeed so sublime as to banish all ideas of fatigue and apprehension. Half an hour more brought us to the side of a fountain, where we sat down to our dinner. We had now employed five hours and a half from Chamouny, and notwithstanding all difficulties and necessary halts, had walked fifteen miles, but none of us complained of fatigue.

The clouds beginning to gather, warned us to hasten to the top of the Couvercle. From that station we had the view of three stupendous vallies of ice, the glacier of Talefre to the left, in front that of PEchaut, and the Tacu to the right ; all uniting in one great valley of ice called the *Glacier des Bois*, which stretched under our feet, and was surrounded and ornamented by the rugged needles. The dead silence which reigned in this place was only interrupted by the bounding of distant chamois, and the cries of alarm which the marmots gave to their tribes at our approach.

Having refreshed ourselves we proceeded to the top of the Couvercle, a most extraordinary rock of granite, having the appearance of a large irregular multilateral building placed on a mountain ; the ascent was laborious, but perfectly secure. Towards its foot we found a bottle containing the names of two Englishmen who had reached that place about a fortnight before, and probably flattered themselves that no stranger would go beyond them. We wrote our names on the reverse of the paper, and carried the bottle with us to the summit of the Couvercle. Three quarters of an hour brought us to the point, and we reached a rock overhanging a precipice which my eyes dared not measure. In this situation we were surprised with a thunder storm, which added great horror and magnificence to the scene. We took shelter under an impending rock, and listened to the roaring of the storm with a mixed sensation of fear and pleasure. On reflecting in this place that we were to measure back the same ground, and to undergo a repetition of the same difficulties, we were not exempted from alarm ; but recollecting that it is the duty of man to encounter some dangers, in order to behold such glorious scenes, we from that moment banished all apprehensions.

Our view from the top of the Couvercle comprehended the same sublime scenes we had enjoyed from its base, but considerably heightened and enlarged ; the stupendous extent of ice appeared like a rugged expanse of frozen sea, bounded by the most gigantic rocks, and terminated by Mont Blanc, the Atlas of the globe. Although we were thus entirely enclosed between ice and snow, and barren crags where all vegetation might be supposed to cease ; yet our eyes reposed on a triangular rock, clothed with grass and alpine plants, and starting up like a fertile island in the midst of a desolate ocean. It is known by the name of the *Garden*, and exhibits a curious contrast to the surrounding dreariness.

• During our expeditions into the Alps, we had frequently found occasion to remark the peculiarly deep shade of the blue colour * in the “*pure Empyrean* †;” and to-day we were more particularly affected with this circumstance. It conveyed a most sublime idea of the infinity of space: the higher we ascended the more beautiful it seemed; and we were informed by a person accustomed to alpine scenes, that, on considerable elevations, he had frequently observed the stars at noon-day.

Our descent from these icy regions was no less fortunate than our ascent; we reached the Priory at seven in the afternoon, without the least accident, and wrapt in astonishment on the recollection of scenes which surpass the imagination, as much as they defy description. I am, &c.

LETTER XXXIX.—*Various attempts to reach the Summit of Mont Blanc.—Successful Expedition of James Balma and Dr. Paccard.—Of Saussure.—His physical Observations.*

VARIOUS attempts having been made to reach the summit of Mont Blanc, as well by the guides of Chamouny, as by Messrs. de Saussure and Bourrit; a chronological account of the principal expeditions which have at length terminated successfully, will not, perhaps, be uninteresting.

The first was made by M. Couteran and three guides of Chamouny, Michael Paccard, Victor Tissay, and Marie Coutet. On the 13th of July 1776, they set off from the Priory, about eleven in the evening; passed between the glaciers of Bosson and Tacona; and, after employing above fourteen hours in mounting rugged and dangerous ascents, in crossing several vallies of ice, and large plains of snow, found themselves on the top next to Mont Blanc. At first sight it appeared scarcely a league distant; but they soon discovered that the clearness of the air, the extraordinary whiteness of the snow, and its great height, made it seem nearer than it was in reality; and they perceived with regret, that it would require at least four hours more to reach the summit, even supposing it practicable. But as the day was far advanced, and the vapours towards the summit of Mont Blanc began to gather into clouds, they were obliged to relinquish their enterprize. As they were returning in great haste, one of the party slipped in attempting to leap over a chasm of ice. He held in his hand a long pole spiked with iron, which he had struck into the ice; and upon this he hung dreadfully suspended for a few moments until he was released by his companions. The danger he had just escaped made such an impression upon him that he fainted, and continued for some time in that situation: he was at length brought to himself, and, though considerably bruised, sufficiently recovered to continue his journey. They arrived at Chamouny about eight in the evening, after a journey of two-and-twenty hours: as some sort of recompence for so much fatigue they enjoyed the satisfaction, at least, of having approached nearer to Mont Blanc than any former adventurers.

According to Sir George Schuckborough, the summit which they attained is more than 13,000 feet above the Mediterranean. These persons, however, did not take the necessary precautions for so perilous an enterprize; for the expedition was not only extremely hazardous, but also far too fatiguing and difficult to be accomplished within

* The depth of this blue colour is owing to the extreme purity and transparency of the air. Saussure made some curious experiments to ascertain the exact shade of blue which forms the colour of the heavens in this elevated spot. By means of slips of paper stained with different tints of blue, from the palest to the darkest, he formed a scale of 51 shades, and found that the 39th was the colour of the heavens. Vol. iv. p. 158.

† Milton.

twenty-four hours. The failure of this expedition seemed for some time to repress all future attempts, until the indefatigable Bourrit infused a new spirit into the inhabitants of Chamouny. After reiterated though unsuccessful attempts, on the 11th of September 1784, Bourrit, accompanied by six guides, departed from Bionafay, and was *scaling*, as he expresses himself, the *rampart* of Mont Blanc, when he suddenly found himself so extremely affected by the intense cold, that he was unable to proceed.

Marie Coutet and Francis Guidet, two of the guides who attended him in this expedition, preceded their company, and ascended to the Dome of Goutè, which is about 9400 feet in a horizontal direction from the summit. Marie Coutet informed me, that they passed the Middle Dome, and walked along the ridge between that dome and the summit as far as some high rocks, which appear from the vale of Chamouny like small points rising out of the snow, but night approaching obliged them to return.

On the 4th of September 1785 Marie Coutet and James Balma reached a place under a rock at a considerable elevation, where they passed the night. Setting off before sunrise, they found themselves about seven on the Dome of Goutè, and were proceeding towards the summit with a fair prospect of success, when a violent storm of hail accompanied with a strong wind compelled them to return.

On the 13th of September Messrs. de Saussure and Bourrit, attended by twelve guides well provided with barometers, thermometers, and other instruments, for the purpose of making the necessary observations, departed from Bionafay, and arrived at a hut, which they had ordered to be constructed at *Pierre Ronde* 7808 feet above the level of the sea. Here they passed the night, and early the next morning reached the Dome of Goutè without the least accident, and without much difficulty; where they were stopped by a fresh fall of snow, into which they sunk so deep that all farther progress was impracticable. Saussure informs us, that the mercury in the barometer sunk eighteen inches and a half, and that he reached an elevation of 1290 toises, or 8256 English feet.

At length, in July 1786, six guides of Chamouny having failed in another attempt, James Balma, one of the party, being overtaken by darkness, as he was rambling upon the ice, missed his way, and passed the night in a spot above the Dome of Goutè, elevated more than 12,000 feet above the level of the sea. His youth, and the strength of his constitution, having preserved him from the effects of the nocturnal cold in so severe an atmosphere, at the approach of morn he reconnoitred the situation, and observed a part which appeared more easy of access than any hitherto attempted. On his arrival at Chamouny he was seized with a very severe indisposition, the effect of extreme fatigue, and of the intense cold. Being attended by Dr. Paccard, a physician of the place, James Balma communicated his observations; and, in gratitude for his attendance, offered to conduct him to the summit of Mont Blanc.

On the 7th of August these two daring adventurers sallied from Chamouny upon this memorable expedition, and reached before dark the mountain *La Côte*, which overhangs the upper part of the glacier of Boffon. Here they continued during the night; and at three in the morning pursued their route over the ice, ascended the Dome of Goutè, passed under the Middle Dome, and at the last pyramid of rock turned to the east, and continued along the ridge, which is seen from Geneva, and lies on the left of the summit. Here they first began to experience such intense cold, and such extreme fatigue, that Dr. Paccard was almost induced to relinquish the enterprize; being, however, encouraged by James Balma, more accustomed to such dangerous expeditions, he followed his companion. The wind was so violent and piercing, that in order to avoid its blowing in their faces, they were obliged to walk sideways for a considerable time. About

six in the afternoon, they at length attained the summit of Mont Blanc, and stood triumphantly on a spot of ground, which no one had reached before, and at the elevation of 15,662 feet above the sea, which is undoubtedly the highest point in the ancient world. They remained on the summit no more than half an hour, the cold being so intense, that the provision was frozen in their pockets, the ink congealed in their ink-horn, and the mercury in Fahrenheit's thermometer sunk to 18½ degrees. Doctor Paccard had just time to observe the state of the barometer, which he has not communicated to the public.

They employed fifteen hours in ascending; and though they again reached the mountain of La Côte in five hours, found great difficulty in descending, their sight being debilitated by the reflection from the snow. They arrived at La Côte about midnight, after twenty-four hours unremitted fatigue. Having reposed themselves two hours, they again sallied forth, and returned to Chamouny at eight in the morning. Their faces were excoriated, and their lips exceedingly swelled; Dr. Paccard was almost blind, and his eyes continued to be affected for a considerable time.

We cannot expect any accurate experiments from these two persons, to whom the glory of first ascending the summit of Mont Blanc is undoubtedly due. But they prepared the way for the observations and discoveries of future naturalists, and particularly of Saussure, whose indefatigable zeal did not permit him to rest, until he had reached the top of Mont Blanc, and made those experiments which cannot fail greatly to elucidate the theory of the atmosphere.

That able naturalist set out on this successful expedition, from the valley of Chamouny on the 13th of August 1787. He was accompanied by eighteen guides, who carried a tent, matras, all necessary accommodations, and instruments of experimental philosophy. They passed the first night on the top of the mountain of La Côte, in a hut previously constructed for that purpose. At four o'clock in the following afternoon they reached an elevation of 9312 feet above the Priory, or 12,762 above the level of the sea. Here they encamped, and formed an excavation in the congealed snow, which they covered with a tent. In this icy habitation, instead of suffering from the cold, Saussure felt such a suffocating heat, from the closeness of the tent, and the number of persons crowded in a small compass, that he was frequently obliged to go into the open air in order to breathe.

The next morning the whole company departed at seven, and found the ascent in some places so steep, that the guides were obliged to hew out steps with a hatchet. At eleven they reached the summit of Mont Blanc. Here they continued four hours and a half, during which time Saussure enjoyed, with rapture and astonishment, a view the most extensive as well as the most rugged and sublime in nature; and made those observations which render this expedition no longer a matter of mere curiosity. You will, perhaps, not be displeased with the following particulars selected from a complete and ample detail of those observations communicated to the public by Saussure in the fourth volume of his *Voyages dans les Alpes*.*

He did not find the cold so extremely piercing as Dr. Paccard and James Balma. By comparing his experiments on Mont Blanc with those made at the same time by M. Senebier at Geneva, he was enabled to give the following observations. Reaumur's thermometer stood in the shade at 2½ below freezing point, or 27 of Fahrenheit; at Geneva,

* A translation of this account, by the Rev. Mr. Martyn, professor of botany in the university of Cambridge, printed by Kearsley, forms an Appendix to his Sketch of a Tour through Switzerland; which I would recommend to the traveller.



at 22. 6, or 82 of Fahrenheit, which gives a difference of near 25 degrees of Reaumur, or 45 of Fahrenheit, between the state of the atmosphere at both places. De Luc's barometer fell to $16.0\frac{1}{4}\frac{4}{8}$, and as it stood at Geneva at $27.2\frac{1}{8}\frac{5}{8}$, it gives a difference of 11. 2, without regarding the fraction. On estimating the height of Mont Blanc from barometrical experiments, he found it almost exactly correspond with that given by Sir George Shuckborough, or 15,662 English feet above the level of the sea, which reflects high honour on the accuracy of the English observer.

By experiments with the hygrometer, the air on the top of Mont Blanc contained six times less humidity than that of Geneva; and to this extreme dryness of the atmosphere he imputes the burning thirst which he and his companions experienced. It requires half an hour to boil water on the top of Mont Blanc, fifteen or sixteen minutes are sufficient at Geneva, and fourteen or fifteen by the sea-side. By experiments on the electrometer, the balls diverged only three lines; the electricity was positive. On the summit he noticed two butterflies on the wing; observed, at the elevation of 11,392 feet above the sea, the *Silene Acaulis*, or moss campion, in flower; and still higher, on the most elevated rocks, the *Lichen Sulphureus* and *Lichen Rupestris* of Hoffman. The summits of Mont Blanc, he adds, and the adjacent mountains, are composed of granite; and next to Mont Blanc, the Schreckhorn and Mount Rosa * in Piedmont, appeared the most elevated points.

Saunders, as well as many of his party, found themselves extremely affected by the rarefaction † of the air; and at two began returning. They descended a little lower than the place in which they passed the preceding night, arrived the next morning at the valley of Chamouny without the least accident, and as they had taken the precaution to wear veils of crape, their faces were not excoriated, nor their sight debilitated.

On the eighth of August, a few days after Saunders's expedition, Mr. Beaufoy, an English gentleman, succeeded in a similar attempt, though it was attended with greater difficulty, arising from the enlargement of the chasms in the ice. An account of this expedition was read before the Royal Society on the 13th of December 1787, and will probably be communicated to the public.

* Saunders afterwards measured the height of Mont Rosa, and found its elevation above the sea 2430 toises, which is only 50 French toises or 320 feet lower than Mont Blanc. Voyages dans les Alpes, tom. iv. p. 349.

† Some persons have attributed the difficulty of respiration to fatigue, and not the rarefaction of the air; but Saunders has fully disproved this opinion. The whole passage is so curious, that I will insert the original words:—

“ Mais de tous nos organes, celui qui est le plus affecté par la rareté de l'air, c'est celui de la respiration. On sait que pour entretenir la vie, sur tout celle des animaux à sang chaud, il faut qu'une quantité déterminée d'air traverse leurs poumons dans un tems donné. Si donc l'air qu'ils respirent est le double plus rare, il faudra que leurs inspirations soient le double plus fréquentes, afin que la rareté soit compensée par le volume. C'est cette accélération forcée de la respiration qui est la cause de la fatigue et des angoisses que l'on éprouve à ces grandes hauteurs. Car en même tems que la respiration s'accélère, la circulation s'accélère aussi. Je m'en suis souvent aperçu sur de hautes cimes, mais je voulois en faire une épreuve exacte sur le Mont Blanc; et pour que l'accélération du mouvement du voyage ne pût pas se confondre avec celle de la rareté de l'air, je ne fis mon épreuve qu'après que nous fûmes restés tranquilles, où à peu près tranquilles pendant 4 heures sur la cime de la montagne. Alors le poulx de Pierre Balmat se trouva battre 68 pulsations par minute; celui de Tétu, mon domestique, 112, et le mien 100. A Chamouni, également après le repos, les mêmes, dans le même ordre, battirent 49. 60. 72. Nous étions donc tous là dans un état de fièvre qui explique, et la soif qui nous tourmentoît, et notre aversion pour le vin, pour les liqueurs fortes, et même pour tout espèce d'aliment. Il n'y avoit que l'eau fraîche qui fit du bien et du plaisir.” Tom. iv. p. 207. ”

LETTER XL.—*Conjectures on the Formation and State of the Glaciers.*

NO subject in natural history is more curious than the origin of these glaciers, extending into fields of corn and pasture, and lying, without being melted, in a situation where the sun is sufficiently powerful to bring vegetation to maturity : for it is almost literally true, that with one hand I could touch ice, and the other ripe corn. As in my first expedition to the Alps my stay was exceedingly short, I declined entering upon a subject too important to be superficially treated, and only threw together a few hasty remarks, which occurred to me on the spot. But I find that these remarks, however hasty and superficial, served to excite your curiosity, and have induced you to inquire, “Which is the most rational system concerning the formation of the glaciers? Are they in a state of augmentation or diminution; or do they remain within the same limits?”

Although in subsequent journeys to the Alps I made this subject a particular object of research, and although I attentively perused the principal systems concerning the formation of glaciers, yet I do not, without great diffidence, presume to reply to your very difficult questions.

The theory of Gruner, confirmed and amended by that able naturalist Saussure, appears the most simple and rational; and I do not know how I can better satisfy your curiosity, than by forming an extract from his much esteemed work *, interspersing it with a few additional remarks drawn from my own particular observations.

If a person could be conveyed to such an elevation as to embrace at one view the alps of Switzerland, Savoy, and Dauphiné, he would behold a vast chaos of mountains, intersected by numerous vallies, and composed of many parallel chains, the highest occupying the centre, and the others gradually diminishing in proportion to their distance.

The most elevated, or central chain, would appear bristled with pointed rocks, and covered, even in summer, with ice and snow, in all parts not perpendicular. On each side of this chain he would discover deep vallies clothed with verdure, peopled with numerous villages, and watered by many rivers. In considering these objects with greater attention, he would remark, that the central chain is composed of elevated peaks and diverging ridges, whose summits are overspread with snow; that the declivities of the peaks and ridges, excepting those parts that are extremely steep, are covered with snow and ice, and that the intermediate depths and spaces between are filled with immense fields of ice, terminating in those cultivated vallies which border the great chain.

The branches most contiguous to the central chain would present the same phenomena, only in a lesser degree. At greater distances no ice would be observed, and scarcely any snow, but upon some of the most elevated summits; and the mountains diminishing in height and ruggedness, would appear covered with herbage, and gradually sink into hills and plains.

In this general survey, the glaciers may be divided into two sorts; the first occupying the deep vallies situated in the bosom of the Alps, and termed by the natives *Vallées de Glace*, but which I shall distinguish by the name of *Lower Glaciers*; the second, which clothe the summits and the sides of the mountains, I shall call *Upper Glaciers*.

1. The Lower Glaciers are by far the most considerable in extent and depth. Some stretch several leagues; that of des Bois in particular is more than fifteen miles long, and above three in its greatest breadth.

* *Voyages des Alpes*, v. i. c. 7.

The Lower Glaciers do not, as is generally imagined, communicate with each other; and but few of them are parallel to the central chain: they mostly stretch in a transverse direction, are bordered at the higher extremity by inaccessible rocks, and on the other extend into the cultivated vallies. The thickness of the ice varies in different parts. Saussure found its general depth in the glacier des Bois from eighty to a hundred feet; but questions not the information of those who assert, that in some places its thickness exceeds even six hundred feet.

These immense fields of ice usually rest on an inclined plane; being pushed forwards by the pressure of their own weight, and but weakly supported by the rugged rocks beneath, are intersected by large transverse chasms, and present the appearance of walls, pyramids, and other fantastic shapes, observed at all heights and in all situations, wherever the declivity exceeds thirty or forty degrees. But in those parts, where the plane on which they rest is horizontal, or gently inclined, the surface of the ice is nearly uniform; the chasms are but few and narrow, and the traveller crosses on foot, without much difficulty.

The surface of the ice is not so slippery as that of frozen ponds or rivers: it is rough and granulated, and only dangerous to the passenger in steep descents. It is not transparent, is extremely porous and full of small bubbles, which seldom exceed the size of a pea, and consequently is not so compact as common ice: its perfect resemblance to the congelation of snow impregnated with water, in opacity, roughness, and in the number and smallness of the air-bubbles, led Saussure to conceive the following simple and natural theory concerning the formation of the Glaciers.

An immense quantity of snow continually accumulates in the elevated vallies enclosed within the alps, as well from that which falls from the clouds during nine months in the year, as from the masses incessantly rolling from the steep sides of the circumjacent mountains. Part of this snow, not dissolved during summer, impregnated with rain and snow-water, is frozen during winter, and forms that opaque and porous ice of which the Lower Glaciers are composed.

2. The Upper Glaciers may be subdivided into those which cover the summits, and those which extend along the sides of the alps.

Those which cover the summits owe their origin to the snow that falls at all seasons of the year, and which remains nearly in its original state, being congealed into a hard substance, and not converted into ice. For although, according to the opinion of some philosophers, the summit of Mont Blanc, and of other elevated mountains, is, from the glistening of the surface, covered with pure ice, yet both theory and experience prove it to be snow. For in so elevated and cold a region, a sufficient quantity of snow cannot be melted to impregnate with water the whole mass, which remains undissolved. Experience also justifies this reasoning. Saussure found the top of Mont Blanc only encrusted with ice, which, though of a firm consistence, was yet penetrable with a stick; and on the declivities of the summit he discovered, beneath the surface, a soft snow without cohesion.

The substance which clothes the sides of the alps is neither pure snow like that of the summits, nor ice which forms the Lower Glaciers, but an assemblage of both. It contains less snow than the summits, because the summer heat has more power to dissolve it, and because the liquefied snow descending from above, the mass absorbs a larger quantity of water. It contains more snow than the Lower Glaciers, because the dissolution of the snow is comparatively less. Hence the ice is even more porous, opaque, less compact than that of the Lower Glaciers, and of so doubtful a texture as

renders it, in many parts, difficult to decide, whether it may be called ice or frozen snow.

In a word, there is a regular gradation from the snow on the summits to the ice of the Lower Glaciers, formed by the intermediate mixture which becomes more compact and less porous in proportion as it approaches the Lower Glaciers, until it unites and assimilates with them. And it is evident, that the greater or lesser degree of density is derived from the greater or lesser quantity of water, with which the mass is impregnated.

In regard to your second question, "*Whether the glaciers are in a state of increase or diminution,*" though I declined on a former occasion entering minutely upon a subject, which required accurate research and experimental investigation, yet I ventured to make one remark, which seemed to prove the occasional increase and diminution of the glaciers, contrary to the opinion of some philosophers, who assert, that they remain always the same, and of others, that they are continually increasing.

The borders of the glacier of Montanvert are mostly skirted with trees: towards its base a vast arch of ice rises near a hundred feet in height, under which the Arveron rushes in a large body of water. As we approached the ice we passed through a wood of firs: those trees which stand at a little distance from the arch are about eighty feet high, and undoubtedly of a very great age. Between these and the glacier, the trees are of a later growth, as is evident from their texture and inferior size. Others, still smaller have been overturned and enveloped by the ice: there seems to be a kind of regular gradation in the age of these trees, from the largest which are standing to the smallest that lie prostrate.

These facts justly lead to the following conclusions: the glacier once extended as far as the row of tall firs; upon its gradual dissolution, a number of trees shot up in the very spots which it formerly occupied; since that period, the ice has again advanced, and has overturned the trees of later growth, before they had attained any considerable height. Large stones of granite are usually found at a small distance from the extremities of the glacier: they have certainly fallen from the mountains upon the ice, have been carried on in its progress, and left on the plain upon the dissolution or sinking of the ice which supported them. These stones, which the inhabitants call *Moraine*, form a kind of border towards the foot of the valley of ice, have been pushed forward by the advance of the glacier, and extend even to the place occupied by the larger pines.

As several writers upon Switzerland have, in contradiction to these facts, endeavoured to prove, that the snow and ice are continually accumulating in the alps, I shall add a few remarks, that may tend to confirm the contrary opinion.

In 1785 the Inferior Glacier of Grindelwald was diminished at least four hundred yards since 1776; in the valley of Chamouny, the *Murailles de Glace*, which I described as forming the border of the glacier of Boffon, no longer existed, and young trees had shot up in the parts which were then covered by the glacier of Montanvert.

The advocates for the increase of the glaciers, admit these facts, yet deny that any judgment can be formed concerning the state of the more elevated regions, from what passes in the vallies, where the sun has power to bring the fruits of the earth to maturity. It appears, they assert, both from theory and fact, that more snow falls, and more ice is annually formed in the alps than can be annually dissolved. To judge from theory; they argue, that the cold occasioned by the mass of ice already formed ought to augment it still further; and in regard to experience, it is evident, that within the memory of the present generation, many mountains have been covered, many pastures and habitations invaded, and many passages irrecoverably obstructed by the ice.

But in considering the arguments drawn from theory, we may observe, that the causes which tend to the diminution of the ice, are no less powerful than the augmentation of the cold, which is supposed to occasion its indefinite increase. These causes are principally, 1. rain and sleet in the less elevated regions; 2. evaporation; 3. descent of the snow and ice, both precipitous and gradual; 4. heat of the atmosphere; 5. mean temperature of the earth.

1. The rain and sleet, which fall during summer upon the Lower Glaciers, not only thaw the ice, but increase the rills that collect on the surface, excavate channels, descend into the clefts, and assist in forming or enlarging the chasms.

2. Evaporation is a still more powerful cause; as it acts at all heights, and in all seasons.

3. The descent of the snow and ice, as distinguished by precipitous and gradual. The *avalanches*, or precipitous fallings of congealed snow, are detached either by their own weight, softened from their hold by the heat of the sun, the warm air which blows from the south, or overthrown by the violent hurricanes extremely common in the upper alps. When these masses are precipitated into a milder region, though they may sometimes resist the influence of heat, and form vallies of ice, yet they are at last dissolved. These *avalanches* are most common in the Upper Glaciers: whereas the gradual descent of the ice is chiefly confined to the Lower Glaciers, and greatly contributes to lessen the aggregate mass.

All the Lower Glaciers, or vallies of ice, rest on an inclined plane, are arched, and undermined by the torrents, which are constantly flowing, as well from the Upper Glaciers, as from their own interior surface. The natural tendency of a heavy body in such a position is to descend, and the progressive motion is accelerated in proportion to its weight, and the greater inclination of its base. This progressive motion, which, though imperceptibly, yet gradually and uniformly, carries the ice into those cultivated plains and vallies, where the sun ripens the fruits of the field; and where a period is put to its farther increase.

If you require a proof of this imperceptible descent, the answer is obvious. It is to be collected from the facts which I have already enumerated, namely from the trees which are occasionally overturned by the ice in its progress, and by the moraine of stones at the bottom of the Lower Glaciers. These stones being similar to the mountains of the upper alps, and essentially different from the rocks below, must have been conveyed by the ice in its descent from the Upper Glaciers.

4. The heat of the atmosphere, or the effect of the sun's rays on the outward surface of the glaciers, is too evident to require any proof, even to those who have never been in the alps. Another cause of a thaw, occasioned by the heat of the atmosphere, which will not be suspected by those who have not visited these icy regions, is derived from the warm winds which blow by night as well as by day in the Upper no less than in the Lower Glaciers. These warm winds are, during summer, so common in these parts, that I never crossed a glacier without feeling, in some particular positions, a warmth similar to the air of a hot bath.

5. But as these two last causes only operate in summer, and the solar rays do not produce sufficient effect in the highest parts, we must have recourse to the mean temperature of the earth, which seems to be the greatest and most powerful agent in preventing an indefinite augmentation of ice and snow. This mean temperature, termed by some philosophers the internal * heat of the earth, is always above the freezing point,

as

* Some philosophers impute this constant thaw, which takes place in the lower surface of the glaciers, to an internal source of heat in the earth; but that opinion has been very ably refuted by several modern naturalists;

as is evident from the heat of the springs which issue from the bowels of the earth. In winter, therefore, or in those high regions of the globe where the cold is usually below the freezing point, any spot of ground covered with only a thin coat of snow, may be so far cooled, to a certain depth, by the influence of the external air, as not to be capable of dissolving any part of the superincumbent snow. But when the mass of snow is of such a thickness as to protect the surface of the ground from the effects of the atmospheric cold, the mean temperature, which is always above the freezing point, will be sufficient to melt the contiguous stratum of snow, and to occasion a constant thaw, which supplies those currents of water that flow, at all seasons, from the Upper and Lower Glaciers.

In regard to the argument derived from experience, it is sufficient to observe, that while I admit the facts which prove the progress of the ice, it by no means seems to follow that its mass is perpetually increasing. For the advocates of this opinion, while they scrupulously enumerate the places which have been invaded by the ice, do not take any notice of those parts, no less numerous, from which the ice has receded.

During my second expedition into the Alps, I also made this point of controversy a particular object of my research; and on enquiring from the *chasseurs* and other persons who frequent the mountains, the greater part were of opinion that the collection of ice and snow, even in the elevated regions, was by no means in a continual state of augmentation; but that while it gained in some places, it diminished in others, and that upon an average, the aggregate quantity was nearly the same.

LETTER XLI.—*Account of the Bouquetin, or Mountain-Goat.*

I OBSERVED, at Michael Paccard's, a guide of Chamouny, a head and horns of the male *bouquetin*, or mountain-goat, and stuffed specimens of a female and a young one.

As this animal is extremely rare, and inhabits the highest and almost inaccessible mountains, the descriptions of it have been inaccurate and confused. But a new light has been lately thrown on the subject by Dr. Girtanner of St. Gallen, and by M. Van Berchem, secretary to the Society of Sciences at Lausanne; and although these two naturalists differ in some instances, yet their joint labours have assisted in ascertaining the nature and economy of this curious animal. The following account of the *bouquetin* is drawn principally from their observations in Rozier's Journal, and from additional information obligingly communicated by M. Van Berchem.

The elder naturalists speak of the *bouquetin* as of an animal well known, and in their time by no means uncommon on the high alps of Switzerland, especially in the canton of Glarus and in the country of the Grisons. On the town hall of Glarus, there is still a pair of horns of an extraordinary length, belonging to an animal of this species, formerly killed in the canton. These horns are probably the same which Ray saw in the last century, when the natives informed him, that the breed was there extinct.

That this animal was found among the Grisons, appears from a letter in the possession of M. de Salis Seervis, dated the fourteenth of October 1574, in which the Arch-

naturalists; the mean temperature of the ground being found sufficient to account for *all* the phenomena, (local circumstances excepted,) which have been usually assigned to an internal heat of the earth.

duke

duke Ferdinand of Austria requires from his bailif of Castels, in the Pretigau, two bouquetins; adding, that he had received several from his predecessors. About forty years after the date of this letter the animal became rare; for a decree in the year 1612 prohibits the chase of the bouquetin under a fine of fifty crowns, and that of the chamois from New Year's Day to St. John, under the penalty of ten crowns. Sprecher in his *Pallas Rhetica*, published in 1617, relates that the chase of the bouquetin was not uncommon in his time, in the vallies of Pregallia, Vals, and Upper Engadina. Another law of 1633, confirmed in the following year, inflicts corporal punishment on those who kill a bouquetin. But these severities could not preserve the breed; and probably this was the epoch of their destruction, when the fear of their being extinct prompted government to forbid the chase*. It is certain, that within the memory of the present generation, no bouquetins have been found in a wild state in the country of the Grisons.

These animals now inhabit that chain which stretches from Dauphiné through Savoy to the confines of Italy, and principally on the alps bordering on Mont Blanc, which is the most elevated part. They haunt the valley of Cormayor to the south of Mont Blanc, the heights between Mont Blanc and the frontiers of the Vallais, and the mountains bordering Val Savarenche; but are found more abundantly in the mountains of the valley of Cogne, and almost always frequent places which have a southern aspect.

The several names by which the bouquetin is known in different languages, are, in Greek, by Homer and Ælian, *Αἰξ αἰγίος*†; Latin, *Ibex*; Italian, *Capra Selvatica*; German and Swiss, *Steinboch*, or Rock-goat, the female, *Etagne*, or *Tschchen* and *Tschgeiss*, perhaps from the Latin *Ibex*; Flemish, *Wildgheit*; French, *Bouquetin*, antiently *Bouc-estain*, the German name reversed. Belon named it *Hircus ferus*; Brisson, *Hircus Ibex*; Linnæus, *Capra Ibex*; Pennant, the *Ibex*; Dr. Girtanner, *Capra Alpina*. I have adopted the name of bouquetin, because it is the provincial appellation of the animal in the Alps.

The systematic naturalists agree in taking the specific character of the bouquetin from the beard, and the horns, which they describe as knobbed along the upper or anterior surface, and reclining towards the back.

The male bouquetin, though larger, much resembles the tame goat. The head is small in proportion to the body, with the muzzle thick, compressed, and a little arched; the eyes are large, round, and have much fire and brilliancy. The horns large when of a full size weighing sometimes 16 or 18 pounds, flatted before and rounded behind, with one or two longitudinal and many transverse ridges, which degenerate towards the tip into knobs; the colour dusky brown. The beard long, tawny, or dusky; the legs slender, with the hoofs short, hollow on the inside, and on the outside terminated by a salient border, like those of the chamois. The body short, thick, and strong. The tail short, naked underneath, the rest covered with long hairs, white at the base and sides, black above and at the end; space under the tail in some tawny, in others white.

* Franciscus Niger, in his description of the Grisons, quoted by Conrad Gesner, says, that they spare this animal in hunting, because it is the armorial bearing of the country.

“*Parcitur hic Capricorne tamen tibi, Panos amice,*

“*Arma quod exornes, et pulchra insignia gen'is,*

“*Hinc longam hinc vitam vivens, ingentia jastas*

“*Cornua, perque plicas rugosa, repandaque in armos,*

“*Formosusque nigris villis in montibus erras.*”

† Most naturalists affirm that Homer calls this animal *Αἰξ ἰβητος*, whereas he styles it *Αἰξ αἰγίος*, or the wild-goat, adding the epithet *ἰβητος*, or wanton. *Iliad* Δ, v. 105.

The coat long, but not pendent, ash-coloured, mixed with some hoary hairs: a black list runs along the back, and there is a black spot above and below the knees. The colour, however, like that of all other animals, varies according to its age and local circumstances.

The female has been little noticed among naturalists. She is one-third less than the male, and not so corpulent; her colour less tawny; her horns small, and not above eight inches long; she has two teats, like the tame she-goat, and never any beard, unless, perhaps, in an advanced age. The young ones are of a dirty grey colour, and the list along the back is scarcely discernible. The female shews much attachment to her young, and even defends it against eagles, wolves, and other enemies; she takes refuge in some cavern, and presenting her head at the entrance of the hole, thus opposes the enemy.

From a stuffed specimen of the male bouquetin in Parkinson's, late Sir Ashton Lever's, Museum, I have given some of the principal dimensions, as they are not to be found in any author that has fallen under my observation, except in Buffon's *Histoire Naturelle*; and those were taken by Daubenton from a young subject.

	Feet.	Inches.
Length of the head from the lower jaw to the space between the horns	0	9½
Length from the root of the horns to the base or origin of the tail	-	4 4
Height at the shoulder before	-	2 5¾
Height at the shoulder behind	-	2 7⅓
Circumference of the body next to the fore legs	-	3 6
Circumference next the hind legs	-	2 2
Circumference in the middle	-	3 8
Circumference of the neck, close to the shoulders	-	2 3½
————— between the ears and the horns	-	1 4

The horns being so remarkable a part of this animal, I shall add the measurement, not only of those belonging to Mr. Parkinson, but of four others, which are deposited in the British Museum. Those in the second and third columns certainly belong to the bouquetin of the Alps; their colour is a dusky brown; the first of these is very flat before, the second not so flat; neither the longitudinal or transverse ridges are strongly marked; these are evidently the horns of a very old animal. The horns in the fourth column belong also to the bouquetin, but probably from some other country. Their colour is black; they are much flatter on the sides, and narrower before than the others, the longitudinal ridge is very strongly marked, and the transverse ridges stronger and more numerous. I cannot observe more than one* longitudinal ridge in any of the horns which I have examined, the exterior part of the front being universally rounded off, and the transverse ridges running very little into the sides. The horns in the fifth column belong unquestionably to the *Ægagrus* of Pallas, which is not improbably a variety of the bouquetin. Two fine pairs of these horns were given to the Museum by the late Duke of Northumberland. They have no anterior flat face, but a sharp ridge, with a few knobs in front, about nine in number, and very distant from each other; they are streaked transversely, more evidently towards the end; their extremities are

* Most naturalists affirm, that the horns are marked with *two* longitudinal ridges; all those that have fallen under my observation have only *one* interior longitudinal ridge, and a faint mark on the exterior edge, which is probably taken for the *second* longitudinal ridge.

much arched, with the points turning inwards. The colour is the same with those of the Alpine bouquetins.

DIMENSIONS of the Horns in Parkinson's, late Sir Ashton Lever's, Museum, (No. 1.) and in the British Museum.

	N° 1.		N° 2.		N° 3.		N° 4.		N° 5.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Rectilinear direction, or chord, from the root to the tip -	2	1½	1	9	2	0	1	8	1	6
Arc, or length measured along the curvature - -	2	8	2	6½	3	6	3	0	3	9
Circumference at the base - - - -	0	9½	0	8	0	10½	0	9	0	9
Distance between them at the base - - - -	0	0½	0	1	—	—	—	—	0	0
Distance between them at the tips - - - -	1	9¾	2	2	—	—	—	—	—	—
Number of transverse ridges - - - -	24		12		20		24		—	

It is a common notion of the hunters, adopted by many naturalists, that the age of a bouquetin may be estimated by the number of transverse ridges or knobs in the horns. M. Van Berchem, however assures me, from his own observations, that this is a vulgar error, and that the age can only be ascertained by the number and form of the teeth, as in sheep and goats. The bouquetin increases in bulk to the age of four years; according, therefore, to the system of Buffon, that the age is about seven times the growth, it lives about twenty-eight or thirty years.

In a state of tranquillity the bouquetin commonly carries the head low; but in running holds it high, and even bends it a little forward. He mounts a perpendicular rock of fifteen feet at three bounds of five feet each, and does not appear to find any footing on the rock, but touches it merely to be repelled, like an elastic substance striking against a hard body; he is not supposed to take more than three successive leaps in this manner. If he is between two rocks near each other, and wants to reach the top, he leaps from one side of one rock to the other alternately, till he has attained the summit. He also traverses the glaciers with rapidity, but only when pursued, for otherwise he avoids them.

The bouquetins feed, during the night, in the highest woods; but the sun no sooner gilds the summits, than they quit the woody region, and mount, feeding in their progress, till they have reached the most considerable heights. They betake themselves to the sides of the mountains which face the east or south, and lie down in the highest places and hottest exposures; but when the sun has finished more than three quarters of its course, they again begin to feed, and to descend towards the woods, whither they retire when it is likely to snow, and where they always pass the winter. The bouquetins assemble in flocks, consisting at most of ten, twelve, or fifteen, but usually in smaller numbers. The males of six years old and upwards haunt more elevated places than the females and younger bouquetins, and as they advance in age are less fond of society; they become gradually hardened against the effects of extreme cold, and frequently live entirely alone.

In summer they feed principally on the *genipi* and other aromatic plants which grow in the high alps; in winter they eat the lichens, and browse on bushes and the tender shoots of trees. They prefer those spots where the dwarf birch and alpine willows grow.

grow, and where *rhododendron*, *thalictrum*, and *saxifrages* abound. The bouquetins having their fore legs somewhat shorter than the hind legs, naturally ascend with greater facility than they descend; for this reason nothing but the severest weather can force them into the lower regions, and even in winter, if there are a few fine days, they leave the woods and mount higher.

Winter is the season of love with them, and principally the month of January. The females are with young five months, and consequently produce in the last week of June, or the first of July. At the time of parturition they separate from the males, retire to the side of some rill, and generally bring forth only one, though some naturalists affirm that they occasionally produce two. The common cry of the bouquetin is a short sharp whistle, not unlike that of the chamois, but of less continuance: sometimes it makes a snort, and when young bleats.

The season for hunting the bouquetin is towards the end of summer, and in autumn, during the months of August and September, when they are usually in good condition. None but mountaineers engage in the chase; for it requires not only a head that can look down from the greatest heights without terror, address and sure-footedness in the most difficult and dangerous passes, but also much strength and vigour, to support hunger, cold, and fatigue. The most determined hunters of bouquetins inhabit the mountains of the Lower Vallais, particularly the natives of Servan, a village in a wild and picturesque situation, between Valorsine and Martigny; and the bouquetins being extinct in their mountains, they hunt in those of the valley of Aost, with the permission of the inhabitants.

Two or three hunters usually associate in this perilous occupation: they are armed with rifle-guns, and furnished with small bags of provisions; they pass the night among rocks at considerable heights, erect a miserable hut of turf, where they lie without fire or covering, and on waking not unfrequently find the entrance blocked up with snow three or four feet in depth. Sometimes being overtaken by darkness amid crags and precipices, they are obliged to pass the whole night standing, embraced in order to support each other, and to prevent themselves from sleeping. As the bouquetins ascend into the higher regions early in the morning, it is necessary to gain the heights before them, otherwise they scent the hunter, and betake themselves to flight: it would then be in vain to follow them; for when once they escape, they never stop till they think themselves entirely out of danger, and will even sometimes run ten or twelve leagues.

When a bouquetin is shot, the hunters let it cool upon the spot, and then embowel it, putting the blood into one of the entrails, which is esteemed by the peasants a sovereign remedy in pleurisy and some other disorders. A large bouquetin thus embowelled will weigh 180 or 200 pounds; a female from 70 to 80.

Some naturalists affirm, that the diminution of the race of bouquetins in the Alps is owing to his size, the monstrous length and weight of the horns, which impede him in his course; because he is driven into places where he can scarcely procure sufficient nourishment during great part of the year, where his sight becomes debilitated, and is frequently lost by the strong reflection of the sun from the ice and snow. They consider this animal rather as a native of the subalpine regions, which are covered during summer with the finest herbage, and where the bouquetins and chamois probably pastured in tranquillity, when only the lower vallies and plains were inhabited.

According to the opinion of others, the bouquetin is endued with strength proportionate to his size; though inferior to the chamois in liveliness and agility, yet he is by no means deficient in activity; his horns, though large and weighty, yet from their reclined position do not seem an impediment, but rather render him an essential service

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when he happens to fall, or purposely throws himself down precipices to avoid his pursuers. His natural food is rather lichens than herbs; he is particularly fond of the young shoots of trees and shrubs; and in all the places where he inhabits, is found in the coldest and rudest mountains, and on the steepest rocks. From these circumstances it is not improbable that his present situation and manner of life is an effect of nature rather than of necessity; and to account for the present scarcity of the bouquetin, we need only consider the number of its enemies, in men, beasts, and birds of prey.

Even should the bouquetin be no longer found in his native Alps, still the race could not be considered as extinct, but as having migrated into a milder climate, and, with a state of domestication and more succulent food, acquired softer manners, a form less rude, smaller and smoother horns. For it is not improbable that the bouquetin of the Alps, the *hircus ferus* or bouc-estain of Belon, the Siberian ibex, and ægagrus, both accurately described by Pallas *, and the tame goat in all its different forms, are only varieties of the same species. They are found to couple freely with each other, are asserted to produce an offspring which is fertile, and all have a beard, which seems to be the characteristic of this genus. The circumstances in which they differ, such as the size, coat, and shape of the horns, cannot be esteemed specific distinctions, and may be accounted for from a change of climate, situation, and food.

The greatest difference undoubtedly consists in the horns; none perhaps, except the bouquetin, having a longitudinal ridge, and some being even without the transverse ridges. But this variation is less perceptible, in comparing the bouquetin with the Siberian ibex, the ibex with the ægagrus, and the ægagrus with the tame goat; for the horns of the Alpine bouquetin are not so much weightier, longer, and larger, than those of the ibex and ægagrus, as to form a certain *specific* distinction †.

But even should this difference be still greater, it can never be admitted as forming a specific distinction; for the horns not only vary in individuals of the same species, but in the same individuals at different ages; and if we attempt to arrange animals *solely* by their horns, the discriminations will be as endless as uncertain. But should the Alpine bouquetin and the other species of the goat genus be excepted from this general assertion, we have only to add, that the horns of the female bouquetin are like those of the tame goat, and that M. Van Berchem possesses the horns of a young one, produced from the union of the bouquetin and she-goat, that are exactly similar to the horns of the ægagrus, which, according to Pallas, resemble those of the tame goat. Climate and nutriment have a great effect upon the horns of animals; it is no wonder, therefore, if a long servitude, an inactive life, a change from the aromatic plants and pure air of the mountains to a gross nutriment and moister atmosphere, should diminish the horns, alter their shape, subdue the longitudinal ridge, and convert the knobs into wrinkles.

* Perhaps also the *capra caucasica*, described by Pallas, from the papers of Guldenstaedt, and which he represents as differing from the ægagrus, with which it has been confounded by some naturalists. See Act. Petr. for 1779.

† The horns of the bouquetin sometimes weigh sixteen or eighteen pounds, are three feet in length, and have twenty-four transverse ridges. A single horn of a Siberian ibex weighed, according to Pallas, eight Russian pounds, which is one-tenth less than an English pound, and had sixteen or eighteen transverse ridges. The horns of another full-grown Siberian ibex measured 2 feet 5 inches and 5 lines along the curvature, and 1 foot 2 inches and 1 line in a rectilinear direction. The horns of an ægagrus measured 2 feet 2 inches and 9 lines along the curvature, and 1 foot 4 inches in a linear direction. The horns of a full grown Caucasian goat were 2 feet 4 inches along the curvature, and 1 foot 6 inches in the linear direction. The longitudinal ridge or ridges remain then as the *only* specific difference between the horns of the alpine bouquetin, and those of the other species. See the measurements in Pallas Spic. Zool. and in his Description of the *Capra Caucasica*, in Act. Petr. for 1779.

Buffon extends the goat genus still further, and comprehends under it even the chamois; conjecturing that the bouquetin is the male in the original race of goats, and the chamois the female. But there does not seem the least foundation for this notion; the chamois being an animal totally distinct from the goat, never coupling with them, and judiciously classed by Pallas and Pennant in the genus of anelopes. The conjecture of Buffon, however, that the bouquetin is the original source of the tame goat seems well-founded, and has been adopted by most succeeding naturalists. And as, according to the just observations of Pallas, the ægagrus approaches nearer than the bouquetin to the tame goat in its form and horns, the ægagrus may be the link which connects the bouquetin and the tame goat. May not the ægagrus be considered as a race produced from the bouquetin and she-goat, or the goat and female bouquetin? Pallas also conjectures that the tame goat may have been propagated from the ægagrus and Siberian ibex, which is allowed by most naturalists to be the same as the bouquetin; and Pennant remarks, with no less sagacity, that the tame goats may be derived from both, as we are assured that the ibex and she-goat will produce a similar offspring. It is likewise probable that the bouquetin is the origin of all the goat genus, because it is the largest, strongest, and dwells in the most inhospitable regions. For, according to the observations of the great zoologist *, those animals who are natives of the coldest mountains must, on descending into the warm plains, be liable to greater changes than those who are formed for milder climates; and this circumstance seems sufficient to account for the great variety observable in the goat genus.

Some naturalists pretend that the bouquetin cannot be the original stock from whence the goats have been produced, because, 'as he inhabits the loftiest summits covered with eternal snow, and feeds only on plants peculiar to high regions, he cannot be domesticated in a variety of climates; but this opinion is contradicted by fact and experience. Stumpf, the historian of Switzerland, informs us, that the Vallaisans near Sion bred tame bouquetins with their goats; and Belon relates, that the Cretans tamed the young bouc-estains by suckling them with goats. Pallas also frequently observed the Siberian ibex among the tame goats, and mentions one in particular at Orenburg, which was leader of a flock, and father of a numerous offspring more resembling the females than himself; it was very different from the tame he-goats, and scarcely inferior in size to a bouquetin two years old; in colour and strength he resembled the wild animal, had thick horns, knobbed, not keeled above, and a long rough coat, but nowhere pendent, except in the beard; the black list on the back was almost obliterated. Lastly, M. Van Berchem saw several tame bouquetins at Aigle; they were gentle and familiar, and, without being remarkably lively, were active and graceful in all their motions; they bred with different she-goats, and the young ones seemed to form a new race.

Should these observations be well-founded, the goat genus, or race of the bouquetin, is found in a wild state along the chain of mountains that traverses the temperate parts both of Europe and Asia; on the Alps, Pyrenees, and Carpathian mountains; on the Taurus and Caucasus; on the mountains of Siberia and Tartary; in Kamtchatka; on the islands of the Archipelago; in Hedsjæas in Arabia; in India; perhaps in Egypt and Lybia.

* Pallas.

LETTER XLII.—*Journey to Geneva.—Pays de Vaud.—Lausanne.—Felix the Fifth.—Vevay.—Tomb and Character of General Ludlow.—Clarens.—Meillerie.*

QUITTING the delightful vale of Chamonny and its magnificent scenery, we continued our route towards Geneva. As we proceeded the height of the mountains gradually diminished, and the vallies through which we passed were agreeably diversified in their forms and productions. We followed the course of the sonorous and violent Arve; near Salenche passed on our right hand a small but picturesque lake, skirted with wood, and from hence descended into the plain, which continues almost perfectly level to Geneva. Salenche lies at the bottom of a broad valley, which here contracts to a narrow pass. According to tradition, this little plain was once a lake; and indeed its form, and the quality of the soil, seem to justify tradition: great part is laid waste by the unruly Arvie, which frequently overflows its banks, and the rest is mostly covered with fruit-trees.

Not far from Magland we stopped to admire a beautiful fall of water, called the cascade of Arpenas, which rushes, like the Staubbach, from an impending rock. When I saw it there was a considerable wind, which drove the torrent at least an hundred yards out of the perpendicular direction, into almost imperceptible spray: I then beheld it trickling down the sides of the mountains in a thousand little streams, which united at a ridge, and from thence formed three cascades; the body of water was much more considerable * than that of the Staubbach; and the fall appeared to me altogether as high. Between Magland and Cluse we took a guide to conduct us to the cave of *la Balme*. The ascent, though not long, was so steep that we were nearly an hour in reaching it; we then scrambled along a precipice, from which we mounted a ladder, and by the aid of the branches of a nut-tree growing from the rock, pulled ourselves into a natural cavern more than a quarter of a mile in length, and forming various branches that led into lofty vaults and spacious openings, the sight of which did not answer the trouble required to enter it.

We passed the night at Cluse, which is situated by the side of the Arve, and the next morning came down the banks of that river to Bonneville, the capital of Faucigny: it stands also upon the Arve, at the bottom of a chain of rocks, which from this place diminish into hills. All this part of Faucigny, as also a small strip of Chablais through which we passed, is a rich plain, producing wine and corn in great plenty, but neither populous nor well cultivated. By the little village of Chene we entered the territory of Geneva, and were much pleased with the sudden change from the poverty of the Savoyards to the neatness and ease of the Genevans; we admired the populousness of the country, the richness of cultivation, and the number of country-seats scattered about the fields.

As I propose re-visiting Geneva, in my way to the south of France, I will defer my account of that interesting town until my return.

We went from Geneva to Crassi, a small village in the Pays de Vaud, where we passed a day with an English gentleman, who has taken a house for the summer in that delightful spot. In our way we passed through Versoi, a little village in the French territories,

* It may be necessary to apprise the traveller, that in dry summers this cascade is sometimes almost destitute of water. If, seeing it under that circumstance, he should conceive the description in the text to be too much exaggerated.

upon the lake of Geneva, which bears the name of *Choiseul's Folly*. Geneva having fallen under the displeasure of France, that minister availing himself of the troubles in 1768, laid a plan to build a new town, and monopolise the whole trade of the lake. Accordingly he fixed upon Verfoi as the most proper situation, formed a pier, made a harbour, constructed a frigate, marked out the streets, sent a considerable quantity of stone to build houses, and stationed a garrison in temporary huts. But when the harbour was nearly finished, and he had expended about 125,000*l.* the scheme was relinquished.

The road from Geneva to Lausanne runs through the *Pays de Vaud*, a region of which historians and travellers speak with rapture; particularly of that part which borders upon the lake of Geneva. It is almost the whole way a gradual ascent from the edge of the lake, richly laid out in vineyards, corn fields; and luxuriant meadows, and chequered with continued hamlets, villages, and towns; the shores are generally of the cleanest gravel, and the water of the finest transparency.

We passed through Nyon, delightfully seated upon the edge of the lake. It was formerly called *Colonia Equestris Noviodunum*; and, as a proof of its antiquity, Roman inscriptions and other ancient remains have been frequently discovered in the outskirts of the town. In this part the lake forms a beautiful curve, happily alluded to by Lucan, where he mentions the army of Julius Cæsar striking their tents, which were posted on the borders:

Deferuere cava tentoria fixa Lemano *.

All the possessions in this country formerly belonging to the Duke of Savoy were conquered by the canton of Bern in 1536, and in the same year the reformation was introduced. From that period all the *Pays de Vaud*, excepting the common bailliages of Granson, Orbe, and a small portion of it which was ceded to Friburgh, has been subject to Bern, and makes part of that canton.

Morges, situated at the extremity of a beautiful bay, is the neatest town in these parts. The environs are extremely pleasant; the banks of the lake form an amphitheatre gently rising to the Jura, and Mont Blanc presents itself through an immense opening in the opposite chain of rocks, which seem to have been formed by nature in order to exhibit a sublime perspective of that beautiful mountain. Near the town is the lime-tree twenty-four feet three inches in circumference, with branches of magnificent extent; it has a companion about three feet less in girth. Mr. Pennant informs me, that "this tree is a native of Switzerland, and of many other parts of the continent; that it was imported into England before the year 1652; one being described by Dr. William Turner as growing in a park near Colchester; that one thirty-six feet in circumference grew near the great church at Bern; it was planted about the year 1410; and the hollow trunk, still putting forth leaves, remained in the year 1702†. The Germans, in old times, planted the lime before their churches and in the market-places, on account of its grateful shade. This tree is now neglected; yet the Romans esteemed it so highly, as to say that it was employed for a thousand purposes; *tiliæ ad mille usus petendæ*. A

* "They strike their tents and quit the hollow bend
"Of Leman's lake."

† A large lime is to be seen on the heights above Villars, a seat belonging to M. Graffenreid of Bern, near Morat; its girth measures at least thirty-six feet in circumference, and its height is not less than ninety feet; it is very ancient, as it was lopped in 1550, for the sake of the bark. The traveller who visits this tree will be no less gratified with an extensive prospect, commanding the lakes of Morat, Neuchatel, and Bienné, and that stupendous chain of snowy Alps, which is represented on the engraving inserted in this volume.

sweet juice exudes from the leaves and bark, from which the Poles extract a honey called by them Liepiz *. Bees are also fond of the flowers; and Virgil, in his beautiful description of the industrious Corycian, places the lime and the pine in the neighbourhood of his hives."

Lausanne contains about seven thousand inhabitants; it is built upon an ascent so steep, that in some places the horses cannot, without great difficulty, draw up a carriage, and foot-passengers ascend to the upper part of the town by steps. But these inconveniences are amply compensated by the sublimest views in nature, commanding the lake of Geneva, the Pays de Vaud, and the rugged coast of Chablais †.

The same year in which part of the Pays de Vaud was conquered from the House of Savoy, the Bishop of Lausanne retired from the town, and the inhabitants put themselves under the protection and sovereignty of the canton of Bern, which confirmed and augmented their privileges. At present Lausanne is governed by its own magistrates, has its own courts of justice, and, what is very singular, the burghers who possess houses in the principal street enjoy the right of pronouncing sentence in criminal causes. The criminal is tried by the civil power: if he is found, and acknowledges himself guilty, one of the magistrates pleads in defence of the prisoner, and another against him; the court of justice give their opinion upon the point of law, and the majority of the burghers possessing houses in the principal street determine the penalty. If the punishment is capital, there is, according to the letter of the law, no pardon, unless obtained

cogere pressis

Mella favis; illi tilia, atque uberrima pinus.

‡ In the first and second editions of this work, the letter on the Pays de Vaud contained this passage:-

"The whole Pays de Vaud is much less peopled than it was during the last century. This depopulation is owing to the increase of luxury, which prevents the gentry from entering into matrimonial engagements so generally as they were heretofore accustomed, and induces numbers of them continually to emigrate in order to engage in foreign services. For although the government of Bern is certainly very mild, and never lays on any additional taxes, nor ever encroaches upon the privileges of their subjects, yet as the gentry are totally excluded from any share in the administration of public affairs, and commerce is reckoned degrading, they have no other resource but foreign services. For this reason many of them are malcontents, and would gladly exchange the mild republican form under which they now live for a monarchical mode of government."

The omission of this passage in the enlarged edition occasioned a censure from some Swiss tourists, as if I had expunged this passage in compliance with the representations of some *aristocrat* of Bern. I deem it, therefore, necessary to state my reasons for this omission.

In my first cursory tour through the Pays de Vaud, I principally frequented the nobility and gentry, from whom I heard repeated complaints of the oppressions under which they groaned, and particularly of their exclusion from all share in the government. But in my subsequent tours I had an opportunity to examine the condition of the peasants, and to learn their sentiments on the nature of the government; and I found that, excepting in the large towns and among the gentry and opulent citizens, the great majority of the natives were fully satisfied with their condition, and deprecated all innovation. For this reason I omitted the passage in the later editions, because the happiness of a country cannot be estimated from the situation of the gentry, and a few opulent citizens alone, but from the general welfare of the collective body of the people. Even in the late revolution of Switzerland, which took its rise in the Pays de Vaud, where the grievances were exaggerated by some factious leaders, and fomented by the agents of France, the number of the dissatisfied was exceedingly small; and had the government of Bern opposed the irruption of the French by arms, and not deprecated it by negotiation, the great majority of the natives would have flocked to their standard. A small minority, assisted by France, overcame the majority; and those who first introduced the French were soon more dissatisfied with their proceedings, than those by whom they were most earnestly opposed. When the tree of liberty was planted at Yverdon, even the adherents of France exclaimed, "It is the tree of slavery, and not the tree of liberty."

The Pays de Vaud was separated from the canton of Bern, and formed into an independent republic under the protection of France in January 1788. In the new division of Switzerland it forms the canton or department of *Leman*, of which Lausanne is the capital.

within twenty-four hours from the sovereign council of Bern; although it generally happens that eight days are granted for that purpose. When the criminal is seized within the jurisdiction of the town, the fact is tried, and the burghers pronounce sentence in the town-hall: in this case there is no appeal. But when he is taken within the district of the bailiff, they assemble in his house, and an appeal lies from their determination to Bern. I have been more particular in my inquiries concerning the mode of this criminal process, from the resemblance it bears, in some respects, to our trial by jury.

Here is an academy for the students of this country: professors in every science are appointed by government, and there is a tolerable library for the use of the public.

I have several times had the good fortune to meet Tissot*, the celebrated physician of this place; well known in the literary world for his excellent writings upon medical subjects. His conversation is uncommonly interesting; as besides his skill in his profession he is well versed in every branch of polite literature. His private character is no less respectable than his public, and he is as much esteemed for his great humanity as for his superior knowledge.

The church of Lausanne, formerly the cathedral, is a magnificent Gothic building, standing on the most elevated part of the town. It contains, among many other sepulchres, the tomb of Amadeus the Eighth, Duke of Savoy, styled the Solomon of his age, but more known by the name of the anti-pope Felix the Fifth, who exhibited a singular instance in the annals of Europe, of a personage *twice* abdicating the pomp of sovereignty, and *twice* retiring to a private station.

Having passed his early youth and opening manhood in the pursuits of ambition, he enlarged his dominions by the acquisition of the Genevois and Piedmont, and obtained an increase of rank by the erection of Savoy into a duchy. Yet in the midst of his success and propitious fortune, the sudden death of a beloved wife, and a narrow escape from assassination, inspired him with a disgust of the world; he resigned his dominions to his eldest son, and, accompanied with a few lords of his court, retired to a palace at La Ripaille, on the borders of the lake of Geneva. In this palace, which he called an *hermitage*, he enjoyed, with an apparent indifference to the affairs of the world, a calm and tranquillity that seemed incompatible with his former aspiring ambition, until he was suddenly called forth to public notice in a more exalted station.

The council of Basle having deposed Eugenius the Fourth, induced, according to some authors, by the reputation which Amadeus had acquired for sanctity, influenced, according to others, by his largesses and intrigues, raised the *hermit* of La Ripaille to the papal throne. This event took place in 1439: the new pontiff quitting his favourite retreat, accepted the proffered dignity either with a real or affected reluctance, and assumed the name of Felix the Fifth.

The æra of his disputed pontificate was marked with turbulence and anarchy. In order to avoid the storms which agitated Europe, and to favour the indolence of his temper, he frequently retreated to his beloved hermitage, and directed the affairs of the church from that sequestered corner. Conscious, at length, that his acceptance of the papacy served to widen instead of healing the schism of the church; finding that he was opposed by the most powerful princes of Europe; that, on the death of his rival Eugenius, the cardinals of Rome had chosen another pope, and being ill supported by the remains of the council of Basle, he terminated the schism by resigning the papal tiara in favour of Nicholas the Fifth. In this transaction he proved his talents for ne-

* Tissot is dead since this was written.

gociation by obtaining the following conditions : that he should enjoy the next rank to the pope, be appointed vicar of the Roman see, and that all the acts passed in his pontificate should be valid. On his resignation he fixed his residence at La Ripaille, and died in 1451.

Felix the Fifth shared the fate of many equivocal characters. By some he is represented as a saint, by others, as covering the most ambitious designs under the mask of sanctity ; by the former, his residence at La Ripaille is described as the retreat of religious austerity ; by the latter, as the seat of luxury. In this, as in similar cases, both parties exceeded the truth. On reviewing the principal events of his life, we may conclude, that a palace built by a prince, in which he was accompanied by many lords of his court, where he instituted an order of knighthood, and resided with the pomp and dignity of a sovereign pontiff, could be no common *hermitage* ; and that he assumed the name, rather than passed the life of a *hermit* ; while the power and rank which he secured to himself on his resignation of the papacy, sufficiently demonstrate, that he never intended to renounce the world. On the contrary, should we admit, that his life at La Ripaille was not embittered by penance and mortifications ; yet as no contemporary authors, even those who were by no means partial to his character, have stigmatised his retirement, we ought not hastily to conclude that it was the retreat of a mere voluptuary. But in whatever light his moral qualities may be considered, no one can withhold from him the character of an able politician.

It is not my intention to enter into a general or particular description of the Roman antiquities discovered in Switzerland ; if you are curious in such researches, I must refer you to Bochart, Miller, Spon, and other antiquaries, who have minutely treated that subject. I cannot, however, avoid mentioning two lately-discovered Roman monuments, which are placed in the garden of M. Levade, near the church at Lausanne.

The first is an altar of white marble with red veins, and was found in 1782 by some workmen in digging the foundations of a house in the town of Vevay ; it is broken in a horizontal direction, and what remains is a foot and a half long and a foot high. The inscription, though not entire, proves it to be an altar erected by the twentieth legion to the god Silvanus :

DEO SILVANO
ESPER URSUL.
FICIO LEG. XX.
DIC

The second monument is a Roman mile-stone, discovered in a vineyard near Pauda, a few paces from the high road, with this inscription :

Imp.
Cæs T. Æ. Avg.
Antonino
Pio · P M Trib ·
Cos. III. P. P.
Avent. : M. P. T
xxxviii.

This inscription removed a doubt long entertained by the Swiss antiquaries. Bochart, among others, expresses his surprise, that no inscription bearing the name Antoninus Pius, who was so great a benefactor to the ancient Helvetians, had been found in Switzerland.

zerland. But this mile-stone, which was put up in the third consulship of that Emperor, is probably the prelude to the discovery of other monuments erected in his honour.

The road from Lausanne to Vevay runs along the sides of the mountains between continued ranges of vineyards. The industry of the Swiss is nowhere more observable than in these parts: the mountains in many places, though naturally consisting of a bare steep rock, are thickly covered with vines; the mould has been brought from other grounds, in order to create a soil, and is supported by rows of stones ranged in straight lines like walls. But this mode of culture, however advantageous and even necessary to the natives, occasions a disagreeable uniformity in the face of the country. The vines also do not form a pleasing and picturesque appearance, like those of the Valteline*, which are carried in beautiful festoons from tree to tree. The plants are low, and fastened to poles about four feet in height; and the walls which enclose them and border the road, frequently interrupt the view.

This district between Lausanne and Vevay is called *La Vaux*, and contains the two pleasant little towns of Lutry and Cully, with the villages of St. Saphorin† and Corrier: it is entirely hilly, rising abruptly from the lake; above the vineyards are rich meadows, and a continued forest.

Vevay, the ancient *Vibiscum*, and the principal town of the bailliage, is clean and well-built, stands in a small plain at the foot of the mountain on the margin of the water, and is one of the few places in the canton of Bern which carry on any trade. The borders of this part of the lake are much more contrasted, wild, and picturesque, than those about Geneva: the mountains of the Vallais and Savoy boldly project into the water, and form a semicircular chain enclosing the lake, except where they are divided by the Rhone a few leagues from Vevay.

Vevay is distinguished as the residence of Edmund Ludlow, the famous parliamentary general, who, in those times of misrule and confusion, uniformly acted with consistency and dignity. True to his republican principles, he no less violently opposed the daring usurpation of Cromwell, than the arbitrary measures of Charles the First, and could never be prevailed upon, either by threats or promises, to desert the cause, which he considered as that of justice and liberty. Being excepted, as one of the King's judges, from the act of indemnity passed at the restoration of Charles the Second, he wandered without any fixed place of residence, until he found an asylum from the attempts of his enemies at Vevay, under the protection of Bern.

At the important period of the revolution he returned to England, anxious to serve his country under our great deliverer; and William the Third, whose mind rose superior to the narrow prejudices of party, was no less desirous to employ a general of

* See Letter lxxv.

† In the church of St. Saphorin is an ancient Roman mile-stone, found near that village:

TI. CLAUDIVS. DRVSI. F.
CÆS. AVG. GERM.
PONT. MAX. TRIB. POT. VII.
IMP. XII. P. P. COS. IIII.
F A
XXXVII.

This inscription ascertains two circumstances frequently called in question: namely, that the banks of the lake of Geneva, which border this part of Switzerland were comprised within a Roman province, even so early as the time of Claudius; and also that *Aventicum* was the chief town of this part of Helvetia: for the mile-stone always referred to the capital of the province in which they were placed, and the distance from St. Saphorin to *Avenches* is nearly 37,000.

such approved experience and fidelity. But the King being addressed by the House of Commons to issue a proclamation for apprehending Ludlow, he was compelled to quit England at this critical period, and again settled at Vevay. We may collect from his general character and conduct, that, had he been permitted to serve his country, he would have successively employed his great military talents against the asserters of bigotry and despotism, with the same zeal which he displayed in opposing an arbitrary government; he would have supported the new administration, when the enormous prerogatives of the crown, against which he had unsheathed his sword, were abolished by law, and the freedom of the subject was established on the basis of equal liberty under the authority of a limited monarch.

He died in 1693, in the sixty-fourth year of his age, and was interred in the church of Vevay. His monument is a plain grave-stone of black marble, containing a Latin inscription, which is printed in Addison's Travels. The house which he formerly inhabited stands near the gate leading to the Vallais, and the uncouth motto inscribed over the door is still preserved out of respect to his memory :

Omne solum forti patria est, quia patris.

The memoirs of Ludlow are written in a simple and perspicuous style, with the knowledge of a man annually engaged in the scenes which he describes, and with the spirit of a general zealous in the cause which he had espoused and defended. Perhaps his animated detail of the trial and execution of the regicides is not surpassed by any narrative in antient or modern history.

Nature can scarcely form a position more delightful than that of the castle of Chatilard or Clarens; it stands not far from Vevay, above the village, on an eminence, whose gentle declivity slopes gradually towards the lake, commanding a view of that majestic body of water, its fertile borders, and the bold rocks and alps of Savoy. The adjacent scenery consists of vineyards, fields of corn and pasture, and rich groves of oak, ash, and Spanish chestnut-trees. Although the situation and environs harmonize with the animated scenery in the *Eloise* of Rousseau; yet the castle by no means accords with his description. The traveller sees an oblong building with antient towers and a penthouse roof; in the inside a large hall like a prison, and the whole bears rather the antiquated appearance of a feudal mansion inhabited by some turbulent baron, than the residence of the elegant and impassioned Julia.

Opposite to Clarens, on the other shore of the lake, are the dark gloomy rocks of Meillerie. The village lies in the recess of a small bay, at the foot of impending mountains, in some parts gently sloping, and clothed to the water's edge with dark forests; in others naked and perpendicular, bringing to recollection the fancied rocks of Leucate*.

These are the scenes of the *Nouvelle Eloise*. Having obtained that novel at a circulating library in Lausanne, I continued, during these expeditions, to examine the position of the country, and compare it with the descriptions of Rousseau. Small objects may be magnified: but no pencil, however animated, can delineate the wonderful and sublime works of nature; even the warm colouring of Rousseau has not equalled the beauty of the scenery. I read with attention the principal parts of that singular performance, and dwelt more particularly upon that letter, in which St. Preux relates his

* " Je n'ai plus qu'un mot à vous dire, ô Julie. Vous connoissez l'antique usage du *rocher de Leucate* dernier refuge des amans malheureux. Ce lieu-ci lui ressemble à bien des égards. La roche est escarpée, l'eau est profonde, et je suis au désespoir."

expedition to Meillerie; wherein love and despair are worked up almost to madness. Open that performance, read that letter, and consider that part of it, where St. Preux points out the number of towns and villages, the continued fertility and high cultivation of the Pays de Vaud, and contrasts it with the gloomy coasts of Chablais, exhibiting only a few towns lying on the edge of the water; you will then see the happy effects of liberty under a mild and equitable government, like that of Bern. I am, &c.

LETTER XLIII.—*Castle of Chillon.—Villeneuve.—Aigle.—Salt-works of Bex and Aigle.*

TRAVELLERS not unusually make an agreeable excursion from Vevay to the salt-works of Bex and Aigle.

The road continues along a plain, with hills on one side, and the lake on the other. Haller's judicious distinction of the elevated part of this country may from this spot be well exemplified. The rocky alps are seen with their pyramidal tops shooting into the heavens, and incrustated with ice and snow. Snow likewise, at various intervals, covers the steep slopes beneath the aspiring peaks; rich pasturage succeeds, and the lower parts are clothed with forests of firs. The mountains, such as the Jura and those rising towards Denis and Gruyeres, are fertile in grass, well wooded, their tops even, extensive, and arable; and though with little appearance of rock on the surface, yet internally filled with a hard yellowish stone fit for building, but impatient of the chisel. The *collines*, or little hills, are frequent at the foot of the mountains, and separated by little vallies watered by brooks.

As I advanced, the mountains approached the lake; their nature changed, their height increased, and their craggy tops and wooded sides convinced me, that I was approaching the genuine alps. Above the woods soared, in a most picturesque manner, a lofty pyramidal crag called *Le Dent de Jâmant*; the woods were firs mixed with oak; the road lay close to the water's edge.

The castle of Chillon, or rather the castellated house, is a large pile with round and square towers, standing on a rock in the lake, and connected with the land by a draw-bridge. The vaults are very fine; the arched roofs, and the pillars which support it, are in a neat gothic style. This castle*, in 1536, was wrested from Charles III. of Savoy by the canton of Bern, assisted by the Genevans, who furnished a frigate, (their naval force) to besiege it by water. In a deep dungeon, below the level of the lake, the conquerors found Bonivard, prior of St. Victor, the intrepid antagonist of the Duke of Savoy, and the great asserter of Genevan independence. He had been imprisoned by the Savoyards during six years, and, by constant walking in his short limits, had worn a hollow in the rock. This castle was for a short time the residence of a bailiff from Bern, until a more convenient house was purchased in Vevay.

About half a league further is Villeneuve, a small town at the extremity of the lake. This magnificent piece of water stretches from Geneva to Villeneuve, in length fifty-four miles; it is in the shape of a crescent; Switzerland forms the hollow, Savoy the convex part; the greatest breadth is from St. Sulpice to Grande Rive, where it is twelve miles wide. Savoy affords a rude and awful boundary of aspiring alps; craggy and covered with the ice of ages. The country from Geneva to the environs of Lausanne, slopes for a considerable way to the margin of the lake, and is enriched with all

* The Castle of Chillon was seized by the insurgents in January 1798, and this act of rebellion, not being punished, was followed by the separation of the Pays de Vaud from the canton of Bern.

the varieties which nature can bestow; the long ridge of the Jura, fertile in pasturage, and varied with woods, backs this beautiful tract. Near Lausanne the banks rise very considerably, and form a most charming terrace; a few miles beyond is a rapid descent. Near Vevey begins a plain, which is continued far beyond the end of the lake, but contracting, by the approach of the mountains, towards the lake. The colour of the water is extremely beautiful, clear, and at a distance seems of a most lovely blue.

Near Geneva the coast abounds in small pebbles covered with a brown incrustation; from thence as far as Lausanne the shores are sandy; between that town and Chillon appear ledges of rocks, hard and calcareous; and the extremity of the lake is a marsh formed by the collected mud of the Rhone. The depth is various: De Luc asserts, that on sounding it he had found the greatest depth to be a hundred and sixty fathoms: like all inland lakes enclosed within high mountains, it is subject to sudden storms.

I am uncertain whether any birds frequent the lake, which are not common to the rest of Switzerland. The tippet grebes* appear in December, and retire in February; being obliged to breed in other places, because the lake is almost totally destitute of reeds and rushes, in which they form their floating nest. The skins are an elegant article of luxury, and sell for about twelve or fourteen shillings each.

From Villeneuve the road runs through a beautiful valley, four miles in width, consisting of the richest meadow and corn land, very populous and finely wooded, bounded on each side by the alps, with tops broken into vast crags of various forms. I passed near La Roche, where a director of the salt-works is stationed by the government of Bern; a place rendered memorable by the residence of Haller, who filled that office from 1758 to 1766, and prepared in this delightful retreat many of his numerous publications, particularly his immortal work on physiology.

I left at a little distance Yverne, ruined, in 1584, by the lapse of a mountain occasioned by an earthquake, crossed the torrent of La Grande Eau, and halted at Aigle, a good town, seated beneath some small round hills prettily covered with firs. This country was conquered from the Savoyards by Bern in 1475, and was made a distinct government consisting of four *Mandemens*; the governor resides at Aigle. This town was formerly governed by the family of Torrens; but in 1553 the last count formally resigned his pretensions at Bern. This government of Aigle reaches to the Pays de Vaud, and, when under the dominion of the House of Savoy, was comprised within that district; at present it is classed under the German division, although the language of the natives is French. Further on the valley is greatly contracted, and so filled with trees as to appear a great forest. The laburnum abounds in a wild state; the wood is beautifully veined, of great strength, and much used for wedges and musical instruments; the variety with short spikes of flowers has elegant veins, and is called the *ebony* of the Alps. Pliny says its wood is the hardest next to the ebony. The cornelian cherry is common in the hedges, and the fruit is frequently preserved with sugar. The *Machaleb* cherry, or *Prunus Machaleb*, is found in these parts; the wood is red, of fine scent, and in request for handles of knives; it is known among cutlers by the name of *Bois de St. Lucie*; a pleasant scented water is distilled from the leaves, and the seeds are used to give a fragrantcy to soap. Between Aigle and Bex is a most picturesque view of the castle of St. Tryphon, on the summit of an insulated rock in the middle of the plain; it is quite surrounded with wood, and realises Milton's description of an ancient castle,

“ Bosomed high in tufted trees.”

* Pennant's Brit. Zool. vol. ii. No. 222.

I am informed it is built of marble, and probably of a beautiful black species in the vicinity. St. Tryphon was a Phrygian, who is said to have suffered martyrdom at Nice in 251, at the time of the persecution under the Emperor Decius.

Bex is a small town at the foot of the mountains, five miles from the salt-works at Beviex; in this district I observed the larch in great plenty. Painters, from the time of Pliny to that of Raphael, trusted their works to this wood, which the Roman naturalist styles *immortale lignum*; it is reckoned excellent for all works which are to lie under water; and the borderers on the lake of Geneva prefer it for building their vessels. In these parts I saw most beautiful woods of chefnut; Haller says they extend some leagues, and informs us that they are found in other parts of Switzerland, and even in desert places in some of the transalpine districts; accident must have brought them thither, as, according to Pliny, these trees were first introduced into Europe from Sardinia.

Upon our arrival at the salt-springs, I put on a workman's jacket, and went into the mountain about 3000 feet almost horizontally. The gallery is six feet high, and four broad, and as nicely hollowed as if cut with a chissel: it is hewn in a black rock, veined in some places with white gypsum. The salt is procured from springs, which are found within a solid rock, perforated at a great expence; the richest source yields twenty-eight pounds of salt *per cent.* and the poorest but half a pound. Near these springs are several warm sources which contain a mixture of salt, but are so strongly impregnated with sulphur as to flame when a lighted candle is put into the pipe through which they flow. No solid salt, excepting a few small cubes, has been yet discovered; but the mountain is replete with its particles. Rocks of white gypsum or alabaster, mixed with bluish clay, are common near the springs, in the same manner as may be observed in the pits of Northwich, in Cheshire.

After travelling in this subterraneous passage near three quarters of a mile, I observed a great wheel of thirty-five feet diameter, which raises the brine from the depth of about seventy feet. From this place is a shaft three hundred feet high, which is cut through the mountain to the surface, for the purpose of introducing fresh air. I noticed two reservoirs hollowed in the solid rock for holding the brine; one was a hundred and sixty feet square, and nine in depth. Since my first expedition to these pits in 1776, the workmen had pierced the rock twenty-five feet deeper, and cut a gallery a hundred feet in length; they had also begun to form a third reservoir to contain 5500 cubic feet which was nearly half finished. The brine deposited in these reservoirs is conveyed, by means of two thousand pipes, about a league to Beviex, where the salt is extracted.

The brine pits near Aigle contain only from two to one-half *per cent.*, and yield annually about a third as much as those of Beviex, or about 5000 quintals. The salt is much whiter and heavier than that of Beviex, and consequently bears a higher price.

These, which are the only salt-works in Switzerland, scarcely yield a net yearly profit of more than £3000, and furnish only one-twelfth of the annual consumption of the canton. The remainder is procured chiefly from France, which by treaty provides the Swiss states with this commodity at a moderate price; indeed, so high is the tax upon salt in that kingdom, that even the French salt is sold two thirds cheaper in Switzerland, than in many parts of France*. The ordinary price of common salt throughout the canton is three halfpence per pound.

LETTER

* At Paris, where it is the dearest, a pound of salt is sold for about 13 sols, or about sixpence of our money; in some other parts of France, for instance in Franche Comté, a pound costs only 4 or 5 sols; but

LETTER XLIV.—*Valley and Lake of Joux.—Orbe.—St. Barthelemi.—Yverdon.*

Yverdon, Sept. 7.

THE chain of mountains called the *Jura*, begins in the canton of Zurich, extends along the Rhine into the canton and bishopric of Basle, stretches into the canton of Soleure and the principality of Neuchâtel, branches out towards the Pays de Vaud, separates that country from Franche Comté and Burgundy, and continues beyond the frontiers of the Genevois as far as the Rhone. In various parts of the Pays de Vaud, this chain forms many elevated vallies much visited by travellers, amongst which, not the least remarkable, is the valley of the lake of Joux, upon the top of that part of the Jura called Mont Joux, in the bailliage of Roman Motier. It contains several neat and well-peopled villages, is beautifully chequered with wood, arable and pasture ground, and watered by the two picturesque lakes of Joux and Brenet.

Near the small village of Abbaye, a rivulet gushes from the bottom rock, and loses itself in the larger lake. From the small lake descends a stream, which is lost in a hollow gulph called *L'Entonnier*, or the Funnel, a name common to several others in this place; in this gulph several mills are turned by the force of the current. About two miles further, on the other side of the mountain, the river Orbe bursts forth, and is probably produced by the stream here ingulphed.

This little vale is very populous, containing about three thousand inhabitants, who are remarkably industrious. Some make watches; but the greater part are employed in polishing crystals, granites, and marcasites. In the small village of Pont, where we lodged, most of the inhabitants bear the surname of Rochat; a name which also runs through the village of Charboniere, with the exception of only two or three families, and is prevalent likewise in that of Abbaye: the whole number of these Rochats amounts to about a thousand; they are supposed to be descendants of the same family, and their ancestors came originally from France. These parts are much infested with bears and wolves.

In descending from this delightful spot, through a variety of hill, valley, wood, and lawn; we had a most extensive prospect, comprehending great part of the Pays de Vaud, the lake of Geneva with its mountainous boundary, and that of Neuchâtel. These two lakes appear, from that high point of view, to be nearly upon the same level*, with no considerable swell of the country intervening.

We passed through a beautiful and picturesque country from Roman Motier to Orbe; which, according to antiquaries, was the most ancient town, and once the most powerful, of all Helvetia; it was called *Urba*, and was the capital of the *Pagus Urbigenus*: no remains, however, exist at present of its ancient splendour. Some antique fortifications, an old castle, and a round tower, are works probably of later and more turbulent times; erected, perhaps, when this country was divided into a number of feudal sovereignties. I am greatly pleased with the romantic situation of the town, the boldness of the single-arched bridge projecting over the Orbe, the wild scenery on the banks of that river, the frequent cataracts, and the picturesque views in the environs.

but it is furnished to the Swiss at the rate of 2½ sols. The reader will recollect that this account was written in 1776.

* According to M. de Luc, the lake of Neuchâtel is 159 French feet above that of Geneva.

M. Venel, an eminent surgeon of this town, has formed, under the protection of the government of Bern, an establishment which well deserves the attention of the humane and curious traveller. It is an infirmary for the reception of those objects who are born with distorted limbs, or owe that misfortune to accident. The children are lodged and boarded in the house under the care of his assistant, who charges himself with all the detail of housekeeping, and of instructing those, whose age renders it requisite that their education should not be neglected. M. Venel's skill in improving and simplifying the machines necessary for his purpose, has been sufficiently attested by various cures.

Though he chiefly confines his attempts to infants and children, yet he has performed several cures on adults. His most efficacious remedy is a machine which he has invented to embrace the patient's limbs when in bed, and which is contrived to act without disturbing their rest. Ingenious as his method is, yet he acknowledges, that much of his success depends on mild treatment and continual inspection. I was convinced indeed of the mildness of his treatment, by observing several of these children, from four to ten years of age crawling about the ground and diverting themselves with great cheerfulness, although cased up in their machinery. It may not perhaps be unworthy of remark, that M. Venel, on the admission of a miserable object, takes in plaister of Paris the figure of the distorted limbs, in order to demonstrate the progress of the cure. Such an establishment redounds highly to the honour of M. Venel, and the government who protects it, and is worthy of imitation in all countries.

Orbe, which is governed by its own magistrates, is comprised within the bailliage of Echalens, belonging to Bern and Friburgh: these two cantons alternately send a bailif, who resides at Echalens, and remains in office during five years. When Bern appoints the bailif, an appeal lies from his decisions, to the Sovereign Council of Friburgh; as it does to the government of Bern, when he is nominated by Friburgh. By these means a great check is laid upon the exactions of the bailif, and I am informed, that justice is no where more equally administered than in these common bailliages of the cantons.

Perhaps one of the most beautiful and finest positions in Switzerland is the castle of St. Barthelemi, the seat of Count d'Affry, colonel of the Swiss guards; and now inhabited by his son, Count Louis d'Affry, to whom I was indebted for a most kind and friendly reception. This ancient family-seat stands on an eminence in the bailliage of Echalens, about three miles from Orbe, near the high road from Lausanne to Yverdun. The sides of the eminence are feathered with wood, and below are rich fields and meadows of the finest verdure, watered by two lively torrents which unite and form the Falun. Upon the high road, the count has reared an obelisk, on which he has inscribed, in the true spirit of toleration, "*Praise God, all ye nations,*" in the English, Latin, French, and German languages.

The castle commands a prospect of a most fertile and well-wooded country, gently broken into hill and dale; on one side appears a distant view of the Jura and the hills of Burgundy and Franche Comté; on the other, the horizon is bounded by the rugged alps in the canton of Bern and in the Vallais, by Mount Velain, the highest point of St. Bernard, and Mont Blanc, whose superior elevation above the surrounding heights is such, that its summit reflects the rays of the rising sun several minutes sooner, and retains those of the setting sun several minutes later than any of the circumjacent mountains.

From St. Barthelemi we descended into the plain, which stretches to the lake of Yverdun, and was formerly covered as far as Entreroches (three leagues from its present

sent position) and probably further, by that lake; it is now, for a considerable part, a great swamp. Within a quarter of a mile of the town, are warm baths which are strongly sulphureous, and much frequented during the summer months.

Yverdun is large, airy and well-built with stone, like the towns in the Pays de Vaud: it stands near the lake, in a small island formed by the two branches of the river Thiele. Between the town and the lake a pleasant lawn extends to the water, planted with avenues of lime trees. Yverdun carries on scarcely any trade, and its principal support arises from the passage of the merchandise between Piedmont and Germany. This town is celebrated for its printing-press, established in the beginning of the present century; but entirely neglected until, some years ago, it was renewed by *Felice*, a Neapolitan of learning and abilities.

The lake of Yverdun, or of Neuchatel, stretches from south to north about twenty miles in length, and in some places about five in breadth; its shores near Yverdun are covered with country-houses.

It is extraordinary, that the dull and tasteless uniformity of the French gardens should have been adopted by the Swiss, whose country abounds with noble and picturesque situations, and where nature wantons in the most luxuriant variety. I have frequently observed, in the midst of the most romantic scenes, a majestic forest sliced into regular alleys, and at the very borders of the fine lakes, artificial pools of water edged with sun-burnt parterres.

Should any person in this instance accuse me of national prejudice, let me exclaim with Voltaire, who certainly cannot be convicted of partiality to the English:

*Jardins plantés en symétrie,
Arbres nains tirés au cordeau,
Celui qui vous mit au niveau
En vain s'applaudit, se récrie;
En voyant ce petit morceau,
Jardins il faut que je vous suie,
Trop d'art me revolte et m'ennuie:
J'aime mieux ces vastes forêts,
La nature libre et hardie
Irégulière dans ses traits
S'accorde avec ma fantaisie.*

I am, &c.

LETTER XLV.—Granfon.—Neuchatel.—M. Pury's Benefactions.

WE skirted the west side of the lake of Neuchatel through Granfon, the principal town of a bailliage of that name, belonging to Bern and Friburgh, and remarkable for the battle in which Charles the bold, Duke of Burgundy, was defeated by the Swiss in 1467. We entered the principality of the Neuchatel about six miles from that town, and passed through St. Aubin, Boudri, Colombier, lying pleasantly upon the borders of the water. The road runs along the side of the Jura, through a country that resembled, in some measure, the district of La Vaux, between Lausanne and Vevey: the sides of the Jura are almost the whole way covered with vines, supported in many parts by low stone walls. The borders are more uniform than those of the lake of Geneva, and do not rise into such high, irregular and grotesque alps as the coast of Chablais. Towards Granfon and St. Aubin, the country is more diversified with meadows and corn-fields; nearer to Neuchatel, the summits of the mountains are clothed with forest, and the midland and lower parts entirely planted with vines.

Between the lake and the Jura many streams burst from the rock, and after turning several mills, fall into the lake at a little distance from their source. The largest is that of La Serriere, near a small village of the same name, which we crossed in our way to Colombier, where we dined with a family whose acquaintance we had formed at the baths of Leuk. We passed a very agreeable day with these amiable persons; by whom we were received with that frankness and unaffected ease which characterises true politeness.

After dinner some musicians of the country performed the *Renz des vaches*, that famous air which was forbidden to be played among the Swiss troops in the French service; as it awakened in the soldiers such a longing recollection of their native country that it often produced a settled melancholy, and occasioned frequent desertion. The French call this species of 'patriotic regret,' *la maladie du pays*. There is nothing peculiarly striking in the tune; but, as it is composed of the most simple notes, the powerful effect of its malady upon the Swiss, in a foreign land, is less surprising. Nothing indeed revives so lively a remembrance of former scenes, as a piece of favourite music which we were accustomed to hear amid our earliest and dearest connections; upon such an occasion, a long train of associated ideas rise in the mind, and melt it into tenderness. To use the language of poetry,

There is in souls a sympathy with sounds.
Wherever I have heard
A kindred melody, the scene recurs,
And with it all its pleasure and its pains*.

It is observable, that those who inhabit mountainous countries are most subject to this *maladie du pays*, because their habits of life are essentially different from the customs and manners of other parts. Accordingly, the Scotch highlanders, and the Biscayans, as well as the Swiss, when absent from their homes, are peculiarly apt to be affected with every circumstance that recalls it to their minds.

The town of Neuchatel is small, and contains about 3000 souls. It lies partly upon the little plain between the lake and the Jura, and partly upon the declivity of that mountain; in consequence of which situation, some of the streets are very steep. At the commencement of the present century, commerce was almost wholly unknown in this town, as the ridiculous pride of its being deemed degrading generally prevailed among the inhabitants: this senseless prejudice, is now, however, nearly extinguished. The chief article of exportation is wine, produced from the neighbouring vineyards, and much esteemed; manufactures also of printed linens and cottons have been established with success; and within these few years, several merchants have raised large fortunes.

Oct. 3, 1786.

The mildness of the government, and the general well being of the inhabitants, are visibly demonstrated from the increase of population, and the prodigious influx of settlers. The number of souls in the principality of Neuchatel and Vallengin being, in 1752, only 28,017 subjects, and 4318 aliens, amounted, in 1784 to 31,576 subjects, and 9704 aliens, which gives an increase of near a fourth part within the space of thirty-two years. The facility of acquiring the burghership of Neuchatel has also prevented any decrease of inhabitants. Thus the magistrates, between the years 1760 and 1770,

* Cowper's Task, book vi.

admitted forty-one burghers; from 1770 to 1780, forty-six; from 1780 to 1785, fifty-one; in all, a hundred and thirty-eight. Many of these settlers had children before they purchased the burgher-ship; thirty-eight were foreigners, either German, French, or Swiss.

Several public works and buildings have been lately erected at Neuchatel, at an expence far exceeding the revenues, or even wants of this little state. Amongst others I shall mention a superb causeway leading towards the valley of St. Imier, and a town-house, built of such solid materials, as if intended to survive to the most distant posterity, and rival the duration of the much-famed Roman capitol *.

The person to whom the burghers of Neuchatel principally owe the embellishment of their town is M. David Pury, late banker of the court at Lisbon. He was a citizen of Neuchatel, and was born in 1709: his father was mayor of Lignieres, afterwards colonel and justice of peace in South Carolina, and founder of Purisburgh. Having received his education in his native town, he quitted it, as some say, in great poverty, and repaired to Geneva, where he passed his apprenticeship, but in what house, or in what trade, the person who obligingly furnished me with these anecdotes did not mention. From Geneva he went to London, and acted as one of the clerks to an eminent jeweller, where he acquired great skill in estimating the value of diamonds. After a long residence in England, he established himself in Lisbon, and carried on an extensive commerce, particularly in brazil-wood and precious stones. Being appointed court banker he rapidly increased his fortune. This generous man, however, did not, with a parsimony usual in persons who have enriched themselves by commerce, consign his money to his coffers, or sparingly distribute his largesses; on the contrary, while living, he remitted large sums of money to his native town, and being unmarried, and having only distant relations, left his country his heir. The following is a list of the sums which he gave away, either in charitable donations, or for the improvement of Neuchatel.

From the year 1771 to 1786, 100*l.* annually for the poor of Neuchatel, and the same sum for those of Vallengin, which, for fifteen years, amounts to 3000*l.* Different sums at various periods, and for divers uses, to January 1785, amounting to 15,900*l.* To this must be added the purchase of near 7000 tickets in the lottery towards raising a fund for building and endowing an hospital, which tickets he also presented to the the said hospital. He died on the 31st of May 1785; and the remains of his fortune, bequeathed to his country, after the payment of a few legacies, did not fall short of 160,000*l.*, which, together with the contributions in his life-time, render his benefactions equal to almost 200,000*l.*

His grateful country obtained from the King of Prussia the title of baron in his favour; a title which, through his singular modesty, he neither bore nor used in the signature of his letters. The citizens of Neuchatel have placed the portrait of this generous benefactor in one of the apartments in which government assembles, and have ordered a marble bust to be executed for the new town-house.

* *Capitolii immobile sanum.*

Virgil.

LETTER XLVI.—*Expedition to Locle and Chaux de Fond.**Neuchatel, September 11.*

I AM charmed with an expedition to the summit of the Jura, and will give you a short account of it, while the impression remains warm upon my mind.

The principality of Neuchatel and Vallengin stretches from the lake to the limits of Franche Comté, containing in length, from north to south, about twelve leagues, and about six in its greatest breadth. The district of Neuchatel occupies all the plain, together with the lower parts of the mountains; while Vallengin is totally enclosed within the Jura. Parallel chains of the Jura run from east to west, and form, in the most elevated parts, several valleys. The lower grounds of this chain are arable lands and vineyards: the higher consist of large tracts of forest, which in many parts have been cleared, and converted into considerable pastures, intermixed with some fields of barley and oats. But the singular genius and industry of the numerous inhabitants, particularly demand the attention of every curious traveller.

We passed through *Vallengin*, the capital of the district; a small open burgh, with a modern castle built on some ancient ruins; and then crossed the *Val de Ruz*, containing above twenty villages, situated at the foot of the mountains which border the valley: the inhabitants in general are employed in agriculture, some few excepted, who follow occasionally the mechanical arts. We arrived about mid-day at La Chaux de Fond, a large handsome village lying in a broad valley which reaches to Franche Comté: from thence we proceeded to Locle, through a continued range of pleasing cottages, which skirt both sides of the road, and are scattered likewise over the country.

La Chaux de Fond and Locle, together with the districts belonging to them, may contain about six thousand inhabitants, distinguished for their genius, industry, and skill in the mechanical arts. They carry on an extensive traffic in lace, stockings, cutlery, and other articles of their own manufacture; but particularly excel in watch-making, and every branch of clock work. All sorts of workmen necessary for the completion of that business, such as painters, enamellers, engravers, and gilders, are found in those villages, where, upon an average, about forty thousand watches are yearly made. The genius and industry, indeed, observable upon these mountains, exhibit a scene uncommonly pleasing; as every individual is sure, not only of obtaining a comfortable maintenance, but also of soon placing his children in a way of procuring their own livelihood; the people marry very early.

Not many years ago the greater part of these valleys was almost one continued forest; but the wonder-working powers of industry have happily changed the scene into flourishing villages and fertile pastures. The increase of population will appear from the following fact: formerly the produce of the country was more than sufficient for the consumption of the inhabitants; at present, although considerably more cultivated, it scarcely furnishes an eighth part of the provisions necessary for interior consumption; the remainder is drawn from Franche Comté. And no wonder; for beside the natural effect of their frequent and early marriages, every stranger, who brings a certificate of his good behaviour, is at liberty to settle, and follow any trade without the least restriction. Here no apprenticeship is necessary, nothing is contraband, and industry exerts herself untaxed.

Beside those particular arts I have already mentioned, several inhabitants of Locle and La Chaux de Fond are well skilled in other branches of mechanical science, and have invented useful mathematical and astronomical instruments. Among those who have eminently distinguished themselves in this way, is the famous Jaquet Droz, who is now at Paris, and whose son exhibited in England several automatical figures of a very singular and surprising construction: one played upon the harpsichord, another drew landscapes, and, what is still more extraordinary, a third copied any word presented to it, or wrote down whatever was dictated by any of the company. These are certainly wonderful inventions, and seem to exalt the powers of mechanism; but still they are mere toys, and an unworthy waste of great genius: it is Swift making riddles. How much more laudably, and with equal success, might the same talents and application have been exerted in improving, or adding to, those instruments and apparatus which are necessary to the astronomer and natural philosopher!

The origin of watch-making in these parts, as related by M. Osterwald, the historiographer of these mountains, is extremely curious; the truth of his account was confirmed to me by several artists both of Locle and La Chaux de Fond. In 1679 one of the inhabitants brought from London a watch, which being out of order, he entrusted it to Daniel John Richard, of La Sagne. Richard, after examining the mechanism with great attention, determined to attempt making a watch from the model before him: but being destitute of every other resource than the powers of his own native genius, he employed a whole year in inventing and finishing the instruments previously necessary; and in six months from that period (by the sole force of his own penetrating and persevering talents) produced a complete watch. But his industry did not stop here: besides applying himself successfully to the invention of several new instruments useful for the perfection of his work, he took a journey to Geneva, where he gained considerable information in the art. He continued for some time the only watch-maker in these parts; but business increasing, he instructed several associates, by whose assistance he was enabled to supply from his single shop all the demands of the neighbouring country. Towards the beginning of the present century he removed to Locle, where he died in 1741, leaving five sons, who followed their father's occupation. The knowledge and practice of the art gradually spread itself, is now become almost the universal occupation of the inhabitants, and may be deemed the principal cause of the population observable in these mountains.

The inventive genius of this mechanical people discovers itself upon all occasions, where it can be applied to the purposes of their convenience and accommodation. To give an instance: the rocks in most parts of the Alps being exceedingly hard and solid, the waters usually make their way along their sides, and rush down in perpetual torrents; but the strata which compose the Jura being less firm and compact, the rains and melted snow penetrating into the crevices, form subterraneous channels, and issue in rivulets at the bottom of the mountains. The peasants, availing themselves of this peculiarity, have, in the midst of these subterraneous channels, with much labour, erected mills which are turned by the descending torrents. They have constructed wheels in places where it seemed scarcely practicable, invented new modes of scaffolding, and a great variety of other ingenious contrivances in order to facilitate their work.

The natives are exceedingly courteous to strangers who visit their country. They are in general well informed in several branches of knowledge, and, as they usually employ their leisure hours in reading, many of the villages contain circulating libraries. The houses are plastered and white-washed; though small, are commodious and well-

built, and furnished with a degree of neatness, and even elegance, peculiarly striking in these sequestered mountains.

The rock which forms the base of the Jura, is mostly composed of calcareous stone; and perhaps there is no spot in Europe where such large quantities of petrified shells and marine plants are found in so small a space. Near Locle I observed a ridge of hills, that seemed to consist entirely of *pierres arborisées*, or stones bearing the impression of plants.

Such perfect ease and plenty reigns throughout these mountains, that I scarcely saw one object of poverty; the natural effects of industry under a mild and equitable government. It is of these vallies, and of their inhabitants, that Rousseau gives so enchanting a description in his letter to D'Alembert.

In returning we had a most sublime prospect of the lakes of Neuchatel, Bienne, and Morat, with the high and rugged chain of Alps stretching from the cantons of Bern and Friburgh, as far as the Vallais, and the mountains of Chablais. I am, &c.

LETTER XLVII.—*Government of Neuchatel.*

AFTER the extinction of the kingdom of Arles or Burgundy, Neuchatel was governed by a succession of petty sovereigns. The direct line failing, the country was possessed by a collateral branch, the Counts of Friburgh, in opposition to the Counts of Chalons, who claimed it as liege lords. On the extinction of the male line it was transferred to the family of Hochberg, and the heiress of this house conveyed it in marriage to Louis d'Orleans, Duke of Longueville (1504). His last descendant, Mary d'Orleans, Duchess of Nemours, dying in 1707 without issue, numerous claimants appeared; but the right of Frederic the First, King of Prussia, as heir to the house of Chalons, was acknowledged by the states of the country, and it now forms part of the Prussian dominions.

Neuchatel is also an ally of the Helvetic Confederacy, by means of treaties of confederacy with Soleure, Bern, Friburgh, and Lucern.

The constitution of Neuchatel is a limited monarchy. The machine of this government is indeed actuated by such nice springs, and its motions are so exceedingly complicated, that a stranger cannot readily distinguish, with any degree of accuracy, the prerogatives of the sovereign, and the franchises of the people; particularly as some even of their most important privileges depend upon mutual acquiescence and immemorial custom, and not upon written laws. I shall endeavour, however, to trace the principal features of this government, the result of my best inquiries during my continuance at Neuchatel.

Upon his accession Frederic the First signed and ratified certain general articles, which in a great measure established the prerogatives of the prince and the liberties of the subject. Beside these general articles, others were added at the pacification of 1768, which terminated the dispute between the sovereign and subject. By this pacification, the King not only renewed his assent to the *general* articles, but also explained them, wherever their tenor had been mistaken; expressly confirming also several other privileges in favour of the people, which had hitherto been equivocal, or not duly observed.

The most important of these general articles are:

1. The sovereign promises to maintain the reformed religion as by law established; and to tolerate no other sect, except within the districts of Landeron and Cressier, where
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the Catholic religion is dominant. 2. No person but a native of the country is capable of holding any civil or military charge, excepting that of governor, who may be a foreigner; and the same incapacity is extended even to natives, who are in the service of a foreign prince. 3. All the subjects have a right to enter into the service of a foreign power, provided that power is not in actual war against the prince, as sovereign of Neuchâtel; and if the sovereign should be engaged in hostilities which do not concern Neuchâtel, that state may continue neuter, except the Helvetic body should be involved in the contest *. 4. Justice shall be equitably administered; and for this purpose, the three estates of Neuchâtel and Vallengin shall be annually assembled. 5. The magistrates and officers of justice, instead of holding their employments during pleasure, shall enjoy them during their good behaviour. By the late pacification it was further agreed, that the prince is not himself the judge of their good behaviour; and they cannot be deprived of their places, unless they are fully convicted of malversation in office, by certain judges at Neuchâtel appointed for that purpose. 6. The sovereign shall take the accustomed oath upon his accession, and promise to maintain all the rights, liberties, franchises, and customs, written or unwritten.

It is remarkable, that one of the most essential rights of the subject depends upon immemorial usage; for that "the sovereign shall be considered as resident only at Neuchâtel," is in the number of their unwritten immunities. Now this privilege, in conjunction with the third article, forms the basis of their civil liberty. By the former, the prince when absent can only address his subjects through his governor and council of state, and no subject can be tried out of the country, or otherwise than by judges appointed by the constitution: by the latter, should the King of Prussia be at war with all Europe, the people of Neuchâtel and Vallengin are by no means obliged to arm in his defence; but individuals may even serve against him, so long as the powers whom they serve are not engaged in hostilities against their country †.

Beside these general articles, that comprehend the privileges of the people at large, there are others which the sovereign is equally bound to maintain, relating to the town of Neuchâtel, and the district of Vallengin in particular.

The prince confers nobility, nominates to principal offices of state, both civil and military, and appoints the chatelains and mayors, who preside in the courts of justice. His revenues, which scarcely amount to 5,000*l.* a-year, arise from certain demesnes, from a small land-tax, from the tithes of wine and corn, and from the tenth of the value on the sale of immoveables. With regard to commerce, no subject pays any duties either of importation or exportation, except for foreign wines imported into the town of Neuchâtel.

* The last clause of this article is not so clearly worded as it might have been; from a delicacy, I suppose, of not expressly stipulating, that the state of Neuchâtel and Vallengin may oppose their sovereign by arms, in case the Swiss should be engaged in war against him. It is evident, however, that they consider their connection with the Helvetic body as of superior obligation to that with their prince, as sovereign of Neuchâtel and Vallengin.

The remarkable clause in question is as follows:

Et qu'en outre et conformément à des articles exprés et formels des franchises tant de la bourgeoisie de Neuchâtel que de celle de Vallengin, cet Etat ne puisse être engagé dans aucune guerre, ni les sujets d'icelui obligés d'y marcher, que ce ne soit pour la propre guerre du Prince, c'est à dire, pour la défense de l'Etat, et pour la guerres que le Prince pourroit avoir en tant que souverain de Neuchâtel et non autrement: en sorte que s'il avoit guerre pour raison de quelque autre Etat, terres et seigneuries, l'Etat de Neuchâtel ne soit point obligé d'y entrer; mais en ce cas devra demeurer dans la neutralité, à moins que tout le corps Helvétique en général n'y prit part et intérêt.

† When Henry Duke of Longueville, and sovereign of Neuchâtel, was, in 1650, sent to the castle of Vincennes, Felix de Mareval, captain of the Swiss guards, kept guard in his turn, though he was citizen of Neuchâtel, at the door of the prison in which his sovereign was confined.

During the absence of the prince, he is represented by a governor of his own appointing, who enjoys considerable honours, but is extremely limited in his authority. He convokes the three estates, presides in that assembly, and has the casting vote when the suffrages are equal; he enjoys the power in criminal cases of pardoning, or of mitigating the sentence. In the governor's absence his place is supplied by the senior counsellor of state.

The three estates of Neuchatel form the superior tribunal, and receive appeals from the inferior courts of justice. They are composed of twelve judges, divided into three estates: the first consists of the four senior counsellors of state, who are noble; the second, of the four chatelains of Landeron, Boudry, Val de Travers, and Thielle*; and in case of absence, their place is supplied by the respective mayors in the principality of Neuchatel, according to a regulated order; the third is composed of four counsellors of the town of Neuchatel. The judges in the first and second division hold their places for life; those in the third are appointed annually. This body ordinarily assembles every year in the month of May; but is convoked extraordinarily upon particular occasions; the town of Neuchatel is always the place of meeting.

The three estates are not the representatives of the people, nor do they possess the legislative authority. They are, properly speaking, the supreme court of judicature, which receives all appeals, and decides finally all causes, even those relating to the sovereignty of the country; a power which they exercised in the year 1707, upon the extinction of the direct line in the person of the Duchess of Nemours.

It may be here not unworthy of remark, that the three estates decided the famous cause of the succession in 1707, as a process between the several claimants of the sovereignty. But if (in failure of claimants) a new sovereign was to be chosen, or a new form of government established, the question would no longer be considered as amenable to a court of judicature, but would be referred to the people assembled by means of their representatives.

The council of state is invested with the ordinary administration of government, superintends the general police, and is entrusted with the execution of the laws. The members nominated by the sovereign are not limited in number. The prince exercises his authority by means of this council, in which he is always considered as personally presiding: the power of the president is only to convoke the assembly, to propose the subject of their consideration, to collect the votes, and to decide when the voices are equal. The ordinances of the council are previously communicated to the *ministres* of Neuchatel, who are to certify that they contain nothing contrary to law.

The town of Neuchatel enjoys very considerable privileges: it has the care of the police within its own district, and is governed by its own magistracy, consisting of a Great and Little Council. I will not trouble you with a detail of the several departments; but I cannot omit mentioning the *ministres*, because the members of that body form the third estate on every act of legislation. The *ministres* are a kind of committee from the council of the town, entrusted with the administration of the police. They consist of the two presidents of that council, four master-burgbers drawn from the Little Council, and the *banneret*, or guardian of the people's liberties. The president and master-burgbers are changed every two years; the *banneret* is chosen by the general assembly of the citizens, and continues in office during six years.

* The principality of Neuchatel is divided into a certain number of districts, some of which are denominated *chatelaines*, and others *mayoralties*. The chiefs of the former are called *chatelains*, and of the latter *mayors*: in every other respect their office and power is the same.

The legislative authority is so complicated, that it would be no easy task to determine precisely where it absolutely resides. Perhaps an account of the persons concerned, and of the forms observed, in enacting and promulgating laws, may assist in clearing the difficulty.

As soon as the causes are decided by the three estates assembled in the month of May, the four judges who form the third estate retire, and are supplied by the four *ministres*. The attorney-general then desires the members of the three estates to take into consideration whether it is necessary to frame any new laws? When a new ordinance is proposed, a declaration is drawn up and delivered to the council of state for their deliberation, whether it is contrary to the prerogatives of the prince, or to the rights of the subject? From thence it is communicated to the council of the town, in order to be examined, whether it infringes the privileges of the citizens. If adopted by the council of state and the council of the town, it is proposed to the prince for his approbation or rejection: in the former case, it is again publicly read before the three estates, and the governor or president declares the approbation of the sovereign. It is then promulgated, or, as the expression is, passed into a law by the three estates.

Since the accession of the house of Brandenburg, the people of Vallengin are always consulted upon the framing of a new law. For this purpose the three master-burghers of Vallengin examine, whether it contains any thing inconsistent with the franchises of that district? in which case they have the power of remonstrating to the governor in council.

From this detail it should seem, that the legislative authority resides conjunctively in the prince, the council of state, and the town; that the people of Vallengin have a kind of negative voice, and that the three estates propose and promulgate the laws.

Every year, at the conclusion of the assembly of the three estates of Neuchatel, those of Vallengin, as constituting the supreme court of judicature for that country, meet at Vallengin, and decide finally all appeals from the inferior courts of justice. The *first* of these three estates is formed by the same four noble and senior counsellors, who sit in the first of the three estates of Neuchatel; the *second* by four mayors of the county of Vallengin; and the *third* by four members of the court of justice of Vallengin, nominated by the mayor of Vallengin. The governor, or, in his absence, the senior counsellor presides, as in those of Neuchatel. The three estates of Vallengin have no interference in any act of legislation: the laws which have been framed or amended at Neuchatel being simply remitted to them by the solicitor-general, and publicly read.

The people of Vallengin assemble every three years in an open plain, to elect their three *master-burghers*, who are respectively chosen from the inhabitants of the burgh of Vallengin, of the Val de Ruz, and of the mountains. The function of these master-burghers is to watch over the general interests of the people: they are also in some cases deputed to Neuchatel by the people, whenever they are summoned by the governor and council of state, in relation to any affair which particularly concerns their country.

The principality of Neuchatel and Vallengin is divided into a certain number of districts, each of which has its criminal court of justice. The great circumspection observed in the judicial proceedings may sometimes favour the escape of the criminal; but the few instances of atrocious crimes prove that this humane caution is no encouragement to transgressors, and is a strong presumption of the general good morals which prevail among the people. In a word, personal liberty is almost as tenderly and as securely protected by the laws of this country, as by those of our own invaluable constitution.

When the criminal is arrested, he is immediately brought to trial; after which the sentence is read to him in prison. The next morning he again appears before his judges, assembled in the open air; the former proceedings on the trial are read, and the judges once more deliver their opinion. In capital sentences, the governor is instantly acquainted with the circumstances of the crime, and if he does not remit or soften the punishment, the sentence is immediately executed. I am concerned to add, that *torture* (though seldom used) is not absolutely abolished.

Such are the general outlines of this remarkable constitution, by which the liberties of the people are as well, and perhaps better, secured than in the democratical cantons; for although the most despotic prince in Germany is sovereign, his power is exceedingly limited. Among the striking circumstances which characterise this government, must be mentioned the very liberal encouragement given to strangers who settle in the country. They enjoy every possible privilege of trade and commerce, and in no state are fewer essential distinctions made between strangers and natives. I have already observed to you the good effects of this enlarged policy on the population of Neuchatel and Vallengin; whereas a narrower and more contracted principle in some of the neighbouring Swiss cantons, has occasioned, and continues to occasion, a very manifest decrease of inhabitants *.

LETTER XLVIII.—*Route from Pontarlier to Neuchatel.—Valley of Travers.—Anecdotes of Rousseau.—Isle of St. Peter in the Lake of Biene.*

Neuchatel, October 1785.

I NOW write to you a second time from Neuchatel, at the interval of nine years since the date of my former letters; on the preceding occasion I went from Granson to Neuchatel; to-day I came from Pontarlier, a small town in Burgundy.

From Pontarlier I ascended gently by the side of the Dou, here a small rivulet bubbling in the vale, quitted that stream and passed under a bold rock, on which stands the castle of Joux forming a picturesque landscape; it has a garrison of invalids, and commands the narrow valley leading into Burgundy. Near it the road is divided into two branches; one leads directly to Joigne, and the other to Neuchatel. In about two hours we observed a stone, which separates France from the county of Neuchatel. Soon afterwards we mounted an eminence, looked down upon the beautiful valley of Travers, and descended to a narrow pass, which is guarded by a chain fastened to the rock, bearing the date of 1722. History, however, makes mention of a similar chain at a much earlier period, particularly in 1476, when Charles the Bold, having ineffectually attempted to force the pass, marched with his army to Joigne, and besieged Granson, where he was defeated.

Having descended to St. Sulpice, I visited the source of the Reus, which issues at the foot of a rock in five copious springs, that form a large body of water, and turn several mills. I was accompanied to this picturesque spot by an inhabitant of Fleurier, a neighbouring village. Speaking of the increase of industry in these parts, he informed me that thirty years ago Fleurier contained only three watch-makers, whereas at present above a hundred were settled in that place. He added, that notwithstanding the constant influx of strangers, hands were still wanting for the numerous trades which are carried on with great success in these parts.

* Of all the states of Switzerland, Neuchatel has hitherto alone escaped the revolutionary vortex; a happy circumstance, which it owes to the neutrality of its sovereign the King of Prussia.

I continued along the high road leading to Neuchatel, through the beautiful and romantic valley of Travers, watered by the Reus, abounding in the most fertile pastures, bordered by hills gently rising from the banks of the river, and beautifully sprinkled with wood. I passed through many neat villages, particularly Bouveresse, Couvet, Travers, and Noirague, where I quitted the valley, and entered the narrow pass of *Clusette*. From hence the road traverses an abrupt and woody country along the sides of precipices, the Reus rolling beneath in a deep channel. At the small village of Brot, a pleasing view of the lake of Neuchatel and the adjacent country opened gradually, as I descended and joined the road leading from Granson to Neuchatel.

I did not quit the valley of Travers without paying a visit to Moitier Travers, rendered memorable by the residence of Rousseau, who being driven first from Geneva, and afterwards from Yverdun by the government of Bern, found a refuge from civil and theological persecution in this secluded valley, under the protection of Lord Keith, governor of Neuchatel. The dwelling-house of this singular man is a small wooden building at the further extremity of the village, near the road which leads to Fleurier, and is now occupied by Mr. Martinet, mayor of the valley, a sensible old gentleman, who lived in habits of great intimacy with the philosopher of Geneva.

The room chiefly occupied by Rousseau is a small bed-chamber, which, out of respect to his memory, is left in the same state as when he lived there. In a corner near the window is a kind of recess formed by two book-cases, and a simple deal plank reaching from one book-case to the other, on which he was accustomed to write. Rousseau admitted company into this room; but suffered no one to enter the recess, from a suspicion that they would overlook his papers. He used also to frequent a small open gallery in the front of the house, enclosed at the extremities with planks, in which were peep-holes for the purpose of reconnoitring those persons who came to visit him, that he might give his orders whether they should be admitted or refused. Here he walked and read.

During his residence at Moitier, from 1762 to 1765, by frequently sauntering into the fields and on the neighbouring mountains, he acquired a taste for the study of botany, which he never intermitted, and always styled his peculiar delight. During this period of his life, he issued from this secluded corner his *Lettre à l'Archevêque de Paris*, his *Lettres Ecrites de la Montagne*, and some other works; in which he displays those wonderful powers of invention and description, that fascinating yet declamatory eloquence, that glow and animation of style, that fondness for paradoxes, that reverence for the scriptures, and yet those perverse doubts of their authenticity, those liberal yet levelling principles of government, that keenness of irony, and that motley mixture of sophistry and argument, which chequer and characterise all his writings.

Rousseau, on his arrival at Moitier, appeared in a common dress, but soon afterwards assumed an Armenian habit; either, as he himself alleged, because that mode of clothing was adapted to the disorder with which he was afflicted; or from that affectation of singularity which seems to have marked his character in every period of his life. Through Lord Keith's intercession, the King of Prussia offered Rousseau a pension of 100*l. per annum*, which he declined, from his aversion to the least shadow of dependence; preferring to copy music for his livelihood, rather than accept an obligation even from so great a sovereign; and he used to boast that he could daily earn a guinea by that occupation.

Rousseau took his repast usually alone; though he would sometimes, but very rarely, accept an invitation from M. Martinet to dinner or supper, particularly when Lord Keith passed a week at Moitier Travers for the purpose of visiting him. On these occasions he was remarkably agreeable and lively; being naturally of a social disposition, he con-

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versed with great spirit and animation, and yet with as much correctness as if dictating for the press.

Rousseau seems to have trusted entirely to his own judgment ; being so impatient of contradiction, that he would never listen to the admonitions of his friends, and seldom asked advice with an intention of adopting it. Having finished his celebrated Letter to the Archbishop of Paris, he read it to M. Martinet, and demanded his advice relative to the publication. The mayor, though struck with the fire and spirit of the rallery, yet could not avoid representing to him that his letter, however forcibly written, would never make a convert of the archbishop ; that he would only be entangled in endless controversies, and draw upon himself much obloquy and ill-will ; " Your advice," returned Rousseau calmly, " is a little too late ; it is already published : " and immediately presented to him a printed copy of the letter which he had just read to him in manuscript.

He derived from nature an extreme sensibility which bordered upon weakness ; he seems to have wanted one proof of a great mind, that of receiving an obligation, and to have possessed such pride and soreness of temper as rendered it impossible to serve him ; for he frequently construed a benefit into an injury. His extreme sensibility was irritated and augmented by a troublesome and painful disorder, which preyed upon his constitution, and at times rendered him unfit for society. To this complaint, in conjunction with that merciless persecution which he repeatedly endured, should be attributed in a great measure the recluseness of his life, and that suspicious mistrust which occasionally bordered upon madness.

Rousseau had now continued three years at Moitier, greatly delighted with his situation, when an unexpected event induced him to quit a retreat, in which he wished to pass the remainder of his days. This event has been variously related. According to some authors, the populace, incited by the minister of the parish, in consequence of the scepticism displayed in his *Lettres Ecrites de la Montagne*, assembled in crowds ; broke the windows of his house, forced open the door, and entering his bed-chamber, treated him with such violence, that he escaped with difficulty, and, not to become a martyr to his opinions, quitted the country. According to others, neither the minister nor the natives were exasperated against him ; but his housekeeper, the same person whom he afterwards married, disgusted with the inhabitants, broke the windows, and persuading her master that he was in danger of being assassinated, induced him to quit Moitier the next morning : as a proof of this assertion, they affirm that one of the stones found in the apartment was too large to have passed through the broken panes of glass.

The truth, however, seems to be, that his pride and suspicious temper rendered him obnoxious to many of the inhabitants ; the scepticism and infidelity in his *Lettres Ecrites de la Montagne* raised a party against him ; some of the people occasionally insulted him ; the minister of the parish summoned him before the consistory ; he declined appearing ; the council of state of Neuchatel proposed condemning the above-mentioned publication, and even applied to the King of Prussia for that purpose. Frederic, in an answer which does honour to his head and his heart, while he permitted them to use any precautions which might tend to prevent the diffusion of sceptical opinions, yet wisely forbade all persecution, and ensured to Rousseau a secure retreat at Moitier under his immediate protection. Before this answer was returned, some of the populace, intoxicated with liquor, threw stones against Rousseau's windows with such violence as to penetrate into the kitchen, and to tear off the plaister from the walls ; but none of these stones did, or could enter his bed-chamber, as that apartment was situated on the other side of the house. This violence, however, exaggerated by the real or pretended terrors of

of his housekeeper, was sufficient to alarm Rousseau: on the next morning he retired from Moitier, and took refuge in the island of St. Peter.

The island of St. Peter, sometimes called the island of La Motte, and sometimes Rousseau's island, lies towards the southern extremity of the lake of Bienna. To this delightful spot I made an agreeable excursion on the 4th of October 1786, in company with the Rev. M. de Meuron, of Neuchatel, and three English gentlemen. We quitted Neuchatel in the morning; passed through St. Blaise and the district of Landeron, and embarked at Neuville, a small town, which, like Bienna, acknowledges the Bishop of Basle for its liege lord, but possesses such rights and immunities as render it an independent republic; it contains about twelve hundred inhabitants. The fine weather, and the clearness of the air, enabled us to enjoy the mild beauties of the view as we sailed to the island. To the south-west we discerned Neuville and its ancient castle, and to the south-east admired the Julimont, an insulated hill adorned with woods of oak, the summit of which is frequently visited by travellers for the beauty of the prospect; and its name has been derived by fanciful antiquaries from Julius Cæsar. At the extremity of a rocky and woody promontory, which stretches from the foot of the Julimont into the lake, stands the castle of Cerlier, and beyond, at some distance, the fertile plains watered by the Thiele.

We landed on the south side of St. Peter's island, and walked through an agreeable meadow skirted with vineyards to a large farm-house, which was formerly a convent*, and is now inhabited by the steward of the general hospital at Bern, to which the island belongs.

The island is about two miles in circumference, and richly wooded with various shrubs and trees, particularly with large oaks, beech, and Spanish chesnuts. Its surface is gently undulating; the southern shore, covered with herbage, forms a gradual slope to the lake; the remaining borders are steep and rocky: in a few places their summits are thinly fringed with shrubs; in others, their perpendicular sides are clothed to the water's edge with hanging woods. The views from the different parts of the island are beautiful and diversified; that to the north is the most extensive and pleasing. It commands the lake of Bienna, which is of an oval form; its cultivated borders spotted with villages and castles, with the towns of Nidau and Bienna standing on the farther extremity. Agreeable walks are carried through the woods; and terminate at a circular pavilion placed in the centre of the island. During vintage particularly, and on Sunday, which is the usual day of festivity, the island is filled with parties who take refreshments at the farm-house, stray about the woods, or dance in the circular building, and animate these romantic but solitary scenes.

Rousseau occupied an apartment in the farm-house, the only dwelling in the island. He lived with the steward and his family, who are the present inhabitants. The woman informed me, that he paid for his board and lodging forty shillings a month; that he usually rose at six, dined with the family at twelve, and after a slight supper retired to rest at nine. She added, he was extremely cheerful and agreeable; conversed with the family with the greatest ease and complacency, and conformed to their hours and manner of living; he amused himself entirely in wandering about the woods, and searching for plants, which he used to explain to them with singular satisfaction. Rousseau mentions his residence in this delightful island with the highest terms of rapture, and with his usual proneness to exaggeration.

* It was secularised at the reformation.

"I was permitted to remain only two months in this delightful island; but I could have passed there two years, two centuries, all eternity, without suffering a moment's *ennui*, although my whole society consisted of the steward and family, good but plain people. I esteem these two months the most happy period of my life; and so happy, that I could have passed my whole existence without even a momentary wish for another situation *."

If we examine in what this *extreme* happiness consisted, he himself informs us, that his principal occupation was in *doing nothing*. He did not even unpack his books, and could scarcely prevail on himself to read, much less to answer any letter. He assisted the steward and his servants at work in the vineyards and fields; sauntered about the woods, and attached himself entirely to botany. He proposed to write a *Flora Petrusculensis*, or a description of the plants in the island; adding on this head, that as a German had published a book on the kernel of a lemon, in the same manner he would compose a treatise on each species of grass, moss, and lichen, and would not leave the most minute particle of vegetation undescribed. He made occasional excursions on the lake, sometimes coasting the shady banks of the island, at other times suffering the bark to float without direction: then, to use his own expressions, "he would lie down in the boat, look up to the heavens, and continue in that posture for several hours, enjoying a thousand unconnected and confused, but delicious reveries." He frequently rowed to a small sandy island, which he describes as a most beautiful spot. It was one of his great amusements to stock it with rabbits; and as he was conveying, with *great pomp*, the steward's family to be present at the foundation of this little colony, he describes himself as *equally elated with the pilot of the Argonautic expedition*.

From these simple avocations and *every day* occurrences, which Rousseau relates with that enthusiasm and those sentiments peculiar to himself, he draws the following reflections: "I have remarked, during the vicissitudes of a long life, that the most delightful enjoyments and most rapturous pleasures are not, upon recollection, those with which I am most affected. Such fleeting moments of passion and delirium, however, rapturous, are, from their very nature, but thinly scattered in the path of life. They are too rare and rapid to constitute a fixed state; and the happiness which my heart regrets is not composed of fugitive instants, but consists in a simple and permanent state, without rapture, the duration of which increases the charm, till it finds supreme felicity."

This state he describes himself as possessing during his short continuance in the island of Bienne; a longer residence would probably have dissolved the charm, which was raised by his own sanguine imagination. That restlessness of temper, which is usually the attendant of great genius, and was his inseparable companion, would have probably returned, and embittered the delightful calm described with such rapture and ecstasy. But he had not time to become disgusted with his situation; for the same intolerant spirit which had hitherto pursued him, followed him even to this sequestered island: he had scarcely passed two months before he received an order from the government of Bern to depart from their territories. Rousseau was so shocked at this unexpected command, that he petitioned to be imprisoned for life, only requesting the use of a few books, and occasional permission to walk in the open air. Soon after this extraordinary request, which shews the extreme agitation of his mind, he reluctantly quitted the island. It does not fall within the compass of a letter to dwell upon this singular man through the subsequent events of his life, or even accompany him to England, where, notwithstanding the most distinguished reception, the same perverseness of disposition, and the

* See Promenade V.

same excessive delicacy rendered him no less unhappy, than when he was under the pressure of real calamities, and exposed to reiterated persecutions.

I am, &c.

LETTER XLIX.—*Environs of Morat.—Mount Vuilly.*

IN our way to Morat and Avenche we crossed the river Thiele, which issues from the lake of Neuchatel, discharges itself into that of Bienne, and separates the principality of Neuchatel from the canton of Bern.

Morat is a bailliage belonging to Bern and Friburgh : the reformation was introduced in 1530, by the majority of voices, in presence of deputies from Bern and Friburgh. The free spirit of the Swiss governments is in no instance more remarkably apparent, than by the mode which they observed in embracing or rejecting the reformation : in many other towns beside Morat, the question was put to the vote, and the minority generally submitted, with perfect acquiescence to the decision of the greater number.

Morat stands pleasantly upon the edge of a small lake, about six miles long, and two broad ; in the midst of a well-cultivated country. The lakes of Morat and Neuchatel are parallel to each other, and separated only by a ridge of hills ; the former is the most elevated ; for it discharges itself by means of the river Broye, into the lake of Neuchatel. According to Le Luc, it is fifteen French feet above the level of that of Neuchatel. Both these lakes, as well as that of Bienne, formerly extended much farther than their present limits ; and, from the position of the country, appear to have been once united.

Mr. Pennant informs me, that “ the vast fish called the *silurus glanus*, or the *saluth*, which frequents the lakes of Morat and Neuchatel, has not been caught here in the memory of man. It is well described, and finely engraven, in Dr. Bloch’s *History of Fishes*, vol. i. 194. tab. 34. In the time of Gesner two were taken, one of which was eight feet long ; but some have been so large as to weigh six hundred pounds. It is an eel-shaped fish, very smooth, round, and thick, with a great head. The mouth is furnished with four short and two long whiskers. It is very inactive and slow in its motions, and loves the deep and muddy parts of the lakes. They are found in many of the great fresh waters of Europe, and abundantly in the Volga.”

On my subsequent expeditions into these parts, I examined with greater attention the environs of Morat, during several days, which I passed most agreeably at Coujouvax, a feat belonging to the Count of Diesbach, and at Grens with M. de Garville, a French gentleman, who, attached to the beauties of this delightful country, has built a villa in a pleasing situation near the banks of the lake of Morat, where he comes every year from Paris to pass the summer. By these families I was received without any other introduction than as being the author of the *Letters on Switzerland*, and with that frankness and cordiality so flattering to a stranger. I found the environs of Morat, though not so wild and romantic as many other parts of Switzerland, yet extremely desirable for a constant residence.

I made several excursions across the lake to an insulated ridge between the lakes of Neuchatel and Morat, and enjoyed many delightful points of view. Of these various prospects the most remarkable is from the summit of Mount Vuilly, where I seated myself on the edge of an abrupt precipice. I looked down upon the lakes of Bienne, Morat, and Neuchatel ; observed the Broye entering the lake of Morat, issuing from thence, and winding through a marshy plain into the lake of Neuchatel ; the Thiele

flowing from the lake of Neuchatel, and hastening to fall into the lake of Bienné; the fertile and variegated countries encircling those bodies of water, and the grounds rising in regular gradations from plains to alps. But what renders this charming spot more particularly striking is, that it is perhaps the only central point from which the eye can at once comprehend the vast amphitheatre formed on one side by the Jura, stretching from the environs of Geneva as far as Basle, and on the other by that stupendous chain of snowy alps, which extends from the frontiers of Italy to the confines of Germany, and is lost at each extremity in the immense horizon.

Impressed with this sublime view, I cast my eyes downwards over that dead and extensive morass through which the Broye serpentine; and exclaimed in the language of poetry, which knows how to animate the dullest objects:

*Quittons les bois et les montagnes
Je vois couler la Broye * à travers les roseaux.
Son onde partagée en différens canaux
S'égare avec plaisir dans de vertes campagnes,
Et forme dans la plaine un labyrinthe d'eaux.
Rivière tranquille et chérie
Que j'aime à suivre tes détours !
Ton eau silencieuse en son paisable cours,
Présente à mon esprit l'image de la vie ;
Elle semble immobile, et s'écoule toujours.*

LETTER L.—*Battle of Morat.—War between the Swiss and Charles the Bold, Duke of Burgundy.—Its consequences.*

MORAT is celebrated for the obstinate siege sustained against Charles the Bold, Duke of Burgundy, which was followed by the battle of Morat, fought on the 22d of June 1476. In this famous engagement the Duke was routed, and his whole army almost destroyed, by the confederate troops of Switzerland. Not far from the town, and adjoining to the high road, a monument of this victory still remains: it is a square building, filled with the bones of the Burgundian soldiers who were slain at the siege and in the battle †. To judge from the quantity of these bones, the number of the

* From a poem entitled "*La Vue d'Anet*." I have followed the example of M. Sinner, in his *Voy. Hist. et Pol. de la Suisse*, who substitutes the Broye for the Thiele, to which the lines in the original are applied.

† In February 1798 the Bernese troops, under the command of General d'Erlach, assembled in the field around this ossuary, to defend their country against the invasion of the French. General Brune recommended d'Erlach to surrender Morat. "My ancestors," replied d'Erlach, "never surrendered; were I base enough to entertain such a thought, this monument of their valour," pointing to the ossuary, "would deter me." Happy might it have been for Switzerland, had the government of Bern been actuated with the same spirit as their general.

On the 3d of March the French troops demolished this ossuary, and the Directory thought the demolition of sufficient importance to be communicated to the Council of Five Hundred:

"On the same day in the evening, the Bernese evacuated Morat, a town famous for the battle gained over the Burgundians in 1476, and for the manner in which the bones of the vanquished were preserved. A trophy so insulting to the French nation could not fail to be destroyed; and, what is very remarkable, it was destroyed by the battalions of the Cote d'or, on the very day which was the anniversary of the battle of Morat. A tree of liberty was immediately planted in the place of this monument, which the oligarchies pointed out beforehand, as destined to become a second time the tomb of the French." Message from the Executive Directory to the Council of Five Hundred, March 13. But this coincidence of circumstances was fabricated for the event, as the battle of Morat was not on the 3d of March, but on the 22d of June.

According also to the French accounts, the colours taken from the Duke of Burgundy, at the battles of Morat and Nancy, were found in the arsenal of Soleure, and sent to Paris. *Moniteur*, 16th Germinal (5th April.)

slaughtered

slaughtered must have been considerable. Among several inscriptions in the Latin and German languages relative to that memorable victory, I transcribed one on account of its conciseness :

*Deo Opt : Max :
Caroli Inclyti et Fortissimi
Burgundiæ Ducis Exercitus
Muratum obsidens ab Helvetiis
Cæsus hoc sui Monumentum reliquit.
Ann : 1476.*

This war, which Charles the Bold carried on against the Swiss with a temerity peculiar to himself, forms a remarkable æra in the history of this country, and was attended with some extraordinary circumstances. From the time of the famous revolution in 1306, which gave rise to the Helvetic confederacy, to the end of the following century, the Swiss republics deprived the House of Austria of all its territories situated in Switzerland, and continued in possession notwithstanding the various attempts of the different Dukes to recover their lost domains. But of all the Princes of that House, Sigismund the Simple, Archduke of Austria, of the branch of Tyrol, was more particularly engaged in hostilities with the Swiss cantons, and their allies ; for his hereditary dominions in Suabia and Alsace bordering upon Switzerland, induced him to enter more frequently into these disputes, than the other branch, which was in possession of the Imperial throne.

In the course of these hostilities, Sigismund was compelled to cede a considerable part of his territories to the Swiss republics ; particularly the rich country of Thurgau to the seven cantons, which at that period composed the Helvetic league *. Inflamed by these repeated losses, and the humiliating conditions of peace he was constrained to accept in 1468, he endeavoured to engage some of the neighbouring powers in a confederacy against the Swiss cantons. Having first ineffectually applied to Louis the Eleventh, King of France, he at length addressed himself to Charles the Bold, Duke of Burgundy.

Charles having succeeded to the possession of Franche Comté, Burgundy, Artois, and Flanders, together with the greater part of the United Provinces, possessed as ample revenues, and as extensive territories, as the most potent sovereign of his time. Magnificent, impetuous, and enterprising, he neglected no opportunity of aggrandizing his power, and set no bounds to the projects of his restless ambition. He formed the plan of erecting Burgundy into a monarchy, and already in imagination appropriated to himself Lorraine and part of Switzerland, which he proposed to annex by conquest to his hereditary dominions.

A Prince of such a character being naturally disposed to undertake any war that might advance his ambitious schemes, received with eagerness the propositions of Sigismund, flattered that credulous Prince with the hopes of receiving in marriage his daughter Mary, heiress of his extensive dominions, and prevailed upon him, by the loan of eighty thousand florins, to surrender, Sundgau, Alsace, Brisgau, and the four forest-towns ; promising to restore them upon the repayment of that sum. By this alliance Sigismund acquired a sum of money to assist him in his preparations against the Swiss, protected, as he thought, his hereditary dominions from their enterprises, and secured a powerful ally against the ancient enemies of his family. The reverse, however, happened ; for, by a strange fatality, this league, which was intended to cement the union of the two

* Bern obtained the co-regency of Thurgau at the peace of Arau, 1712.

Princes, served only to divide them ; and occasioned the first perpetual alliance between the Swiss cantons and a Prince of the House of Austria.

Charles, upon the conclusion of this treaty, informed the cantons, that he had taken Sigismond under his protection, and would defend him to the utmost of his power. Meanwhile, the bailiffs, whom he placed over his newly-acquired territories in Alsace, oppressed the people, laid embargoes upon the commerce of Mulhausen, and withheld the rents of the estates belonging to the Swiss in Sundgau and Alsace.

These grievances being laid before Charles in an embassy which Bern dispatched to his court, in the name of the confederate cantons, the Duke received it with haughtiness; and, after compelling the deputies to kneel while they delivered their remonstrance, dismissed them without an answer. This disdainful treatment was ill brooked by a free people, unaccustomed to crouch before the insolence of power ; and their just indignation was still more inflamed by the artful policy of Louis the Eleventh, who, jealous of the Duke of Burgundy's power, entered into a defensive alliance with the Swiss republics, in order to counteract his designs.

But Louis still further strengthened the Swiss, by effecting a reconciliation between them and Sigismond, who had no sooner surrendered to Charles, Sundgau, Alsace, and the other dominions, than he became sensible of his error. The Duke of Burgundy not only oppressed his new subjects, but seemed determined, even should the eighty thousand florins be repaid, to keep possession of these conditional territories, and did not appear inclined to fulfil the promise of bestowing his daughter upon the Archduke. Induced by these considerations, Sigismond accepted the mediation of Louis, threw himself under the protection of the Swiss, and concluded the famous treaty which was confirmed at Lucern in 1474, called the *hereditary union* ; an appellation appropriated to the treaties between the Swiss and the House of Austria. Sigismond renounced all right to the provinces which the Swiss had conquered from the House of Austria ; the two contracting parties formed a defensive alliance, and engaged to guarantee each other's territories. Thus the Swiss, after depriving Sigismond of all his possessions in their country, engaged to support his title to those very provinces, which he had mortgaged in order to strengthen his arms against them, and Sigismond accepted a guarantee from the most inveterate enemies of his family.

This treaty, which entirely changed the policy of the Swiss republics, was solely effected by the artful intrigues of Louis the Eleventh : the jealousy of that designing monarch turned into another channel the vast preparations of the Duke of Burgundy ; preparations which might have been attended with more success had they been directed against France.

Charles, too late perceiving the imprudence of his conduct towards the Swiss republics, in vain exerted all his efforts to engage them in a neutrality. They rejected his proposals with firmness, prepared with their usual vigour for a war, which now appeared inevitable, and even advanced the eighty thousand florins to Sigismond, who demanded the restitution of his lands, which the Duke of Burgundy evaded under various pretexts. The Duke having concluded a separate peace with Louis, turned his whole force against the Swiss, entered their country with an army of sixty thousand men, and, laying siege to Granfon, carried it by assault. But his success ended there : for at the subsequent battles of Granfon and Morat, he was totally defeated, and his attempts upon Switzerland entirely frustrated *. Nevertheless, his restless and ambitious spirit still unsubdued,

* Charles entered Switzerland confident of subduing that country. The effect which this unexpected and humiliating disappointment had upon his spirits and constitution, is related by Philip de Comines, ⁱⁿ his

unsubdued, impelled him to attack the Duke of Lorraine. But that Prince, having engaged a body of eight thousand Swiss, obtained a complete victory near Nancy; Charles was slain in the engagement *, and his death terminated this bloody war; in which the Swiss gave distinguishing proofs of invincible valour, and spread the fame of their military virtues throughout all Europe, but obtained no solid advantage†. In fact, the principal and almost sole benefit accrued to Louis the Eleventh; as, by the death of Charles, he was not only released from a dangerous and enterprising rival, but also annexed the rich provinces of Burgundy and Artois to the crown of France.

But although the immediate advantages which the Swiss derived from the death of Charles were unimportant; yet the consequences operated considerably on their future politics. Mary of Burgundy, the only surviving child and heiress of Charles, married the Archduke Maximilian, eldest son of the Emperor Frederic the Third, and afterwards Emperor himself. By this marriage the House of Austria acquired possession of the Netherlands, and having frequent disputes with France, the alliance of the Swiss was strenuously courted by both parties. Thus this country, being secured from all invasions, acceded, as occasion offered, to the two rival powers, and assisted each party as the intrigues, or rather as the subsidies of the one or the other prevailed.

These intrigues gave rise to different alliances, contracted with the House of Austria, the Kings of France, the Pope, the Dukes of Savoy and Milan. Not to enter more minutely into their history, I shall only observe in general, that hitherto the Swiss acted with great disinterestedness in all their treaties, and never took the field but with a view to secure their liberties, or to drive their enemies from Switzerland. But about the period of the Burgundian war, the subsidies which they obtained from Louis the Eleventh, taught them the disgraceful arts of mercenary politics; as the rich plunder which they gained from the Duke of Burgundy gave, in some measure, the first taint to their original simplicity of manners; till, at length, *Swiss venality* has become a proverbial expression.

his usual minuteness, in his Memoirs addressed to Angelo Cattho, Archbishop of Vienne in Dauphiné. His account is curious, and will give some idea of the violent and impetuous character of Charles:

“ His concern and distraction for his first defeat at Granson was so great, and made such deep impression on his spirits, that it threw him into a violent and dangerous fit of sickness; for whereas before his choler and natural heat was so great that he drank no wine, only in the morning he took a little tisane, sweetened with conserve of roses, to refresh himself; this sudden melancholy had so altered his constitution, he was now forced to drink the strongest wine that could be got, without any water. And, in order to draw the blood from his heart, some burning tow was put into the cupping-glasses, and applied to his side. But this, my Lord of Vienne, you know better than I; for your Lordship attended on him during the whole course of his illness, and spared no pains that might contribute to his recovery; and it was by your persuasion that the Duke was prevailed upon to cut his beard, which was of a prodigious length. In my opinion his understanding was never so perfect, nor his senses so sedate and composed after this fit of sickness as before.”

Uvedale's Trans. Vol. I. p. 423.

* The death of Charles at the battle of Nancy was attended with some very extraordinary circumstances; for the particulars of which see the curious account extracted from Philip de Comines, and the Chronique Scandaleuse of John de Troyes, in Wrexal's interesting Memoirs of the Kings of France of the House of Valois.

† “ And what,” says Cominés, “ was the occasion of this war? It was begun on account of a wagon of sheep-skins, which the Lord of Romont took from a Swiss, who was passing through his territories. If God had not abandoned the Duke, it is not probable, that he would have put himself into so much danger for so trifling a circumstance; considering the offers that were made to him; against what sort of people he was engaged; and from whence neither profit nor glory could accrue to him. For the Swiss were not in such repute as they are in at present, and nothing could be poorer; inasmuch that one of their ambassadors, as he was endeavouring to prevent the Duke from engaging in that war, remonstrated, that he could gain nothing by attacking them; for their country was so barren, that the spurs of his troops and the bits of their horses were worth more than could be furnished by all the Swiss territories, in case they were conquered.”

LETTER LI.—*Antiquities of Avenche.*

FEW ancient towns have occasioned more controversy among antiquaries, or given rise to such a variety of conjectures concerning their origin and importance, as Avenche, the principal burgh of a bailliage in the Pays de Vaud. Some contend that it was the capital of all Helvetia, because Tacitus calls it *Aventicum gentis caput*: while others have endeavoured to prove, that by this expression the historian intended only to denote the capital town of its particular district. Agreeably to some accounts, the city was built, and a Roman colony founded by Vespasian; but with more probability, according to others, it was only repaired and beautified by Vespasian, after it had been laid waste, and almost ruined, by Vitellius.

Without entering into dry and uninteresting discussions, it was formerly a very considerable town, and under the dominion of the Romans, as appears not only from several mile-stones, found in many parts of the Pays du Vaud, most of which are numbered from *Aventicum*, as the principal place of reference; but more particularly from the present ruins. I shall slightly mention a few of these ruins, merely to shew you, that the inhabitants do not boast of their antiquity without sufficient evidence.

We traced the site of the ancient walls, which appear to have enclosed a space near five miles in circumference. The present town occupies but a very inconsiderable part of this ground; the remainder is covered with corn-fields and meadows. One of the ancient towers still exists: it is a semicircular building, with the convex side towards the town.

We next examined a coarse mosaic pavement, discovered some years ago in ploughing a field, and now in a sad state of dilapidation, enclosed by a barn, which is let to some peasants; the ignorant occupiers employ it as a drying-house for tobacco, and suffer strangers to take away specimens. Even the government of Bern was so insensible of its value, that they permitted the Count de Caylus to remove a pannel, containing the figures of two Bacchanals.

This mosaic was the floor of an ancient bath, and is about sixty feet in length and forty in breadth; the general form is perfect; and, although several parts are broken and lost, yet from the present remains the configuration of the whole may be easily traced. It consists of three compartments: those at each extremity are regularly divided into fifteen octagons, eight small squares, and sixteen small triangles. Five of these octagons in each compartment represented human figures in various attitudes, but chiefly Bacchanals; the remaining octagons were composed of three different patterns. The vacant parts between the octagons are filled with the small squares; and towards the outward border with the small triangles. The middle compartment is divided into oblong pannels, in the largest of which is an octagon bath of white marble, of about six feet in diameter, and a foot and a half deep; the sides are ornamented with dolphins. Of these three compartments, one is almost perfect, the others much defaced. Each of the pannels is encircled with several borders prettily diversified; and a general border encloses the whole.

Schmidt, in his *Recueil d'Antiquités de la Suisse*, ingeniously conjectures from a glory which surrounds the head of Bacchus in this mosaic, that it was wrought during some part of the intervening age between Vespasian and Marcus Aurelius; because that mark of divinity is not usual upon any monuments of Roman antiquity before that period. The same kind of glory, he adds, is observed upon the head of Trajan in an ancient painting

ing at Rome, upon that of Antoninus Pius on a medal, and on the arch of Constantine. He strengthens this conjecture by further remarking, that the head-dress of a Bacchanalian woman represented in this mosaic resembles the head-dress on the medals of the Empress Plotina and Sabina*.

From thence we were conducted to the ruins of an ancient amphitheatre, within the walls of the bailif's garden. The general form and size of this building are tolerably perfect, as also parts of the brick walls which enclosed it. The diameter of the arena was, as well as we could judge by pacing it, about eighty yards, which must be an uncertain estimate, as a former bailif brought in a considerable quantity of earth, in order to plant fruit-trees; conceiving, I suppose, that good fruit was of more value than to be able to determine the precise extent of an ancient amphitheatre. Under a tower partly built of Roman materials, is a cell from which the animals were probably let loose upon the arena. On the outside are still to be seen the remains of five dens; and the walls are adorned with several pieces of rude sculpture dilapidated.

Not far from these ruins stands a column of white marble, about fifty feet in height, composed of large masses, nicely joined together without cement; near it lies a considerable fragment of defaced sculpture, which seems to have once formed part of the portal belonging to a magnificent temple. At a small distance from this column, in the high road, we observed a cornice of white marble sculptured with urns and griffins; and as we walked through the town, we remarked several other masses of cornice, ornamented with sea-horses and urns, and some marble columns of beautiful proportions.

About a mile from Avenche, near the village of Coppet, on the other side of a little stream which separates the canton of Friburgh from that of Bern, are the remains of a small aqueduct, discovered about fifteen years ago, by the accidental fall of a sand-hill. The outside is formed of stones and mortar, and the inside of red Roman cement; the vault of the arch may be about two feet and a half high, and one and a half broad. This aqueduct has been traced to the east side of the town, and near the marble column. We were also informed that it extends to the tower of Gausa, between Vevay and Lausanne, and that, between Villarsel and Marnau, about four leagues from Coppet, an arch of nearly the same dimensions is excavated in the solid rock.

When I visited the ruins of Avenche in October 1786, I had much satisfaction in finding, that the bailif, M. Tcharner, paid great attention to these remains, and particularly to the mosaic. I could not avoid remarking to the bailif, who politely favoured us with his company, that every lover of antiquity must regret, his predecessors had not shewn the same taste. Several excavations were lately made by Lord Northampton, who has a house in the neighbourhood, and have been continued at the expence of Bern. A coarse mosaic pavement, a few fragments of walls rudely painted, and some trifling remains of ancient baths, are the only vestiges of antiquity hitherto discovered.

LETTER LII.—*Town and Canton of Friburg.—Population.—Government.—Secret Chamber.*

FRIBURG was built in 1779, by Berchtold the Fourth, Duke of Zæringen, who endowed it with considerable privileges. Upon the extinction of the male line of the

* The curious reader will find in the *Recueil*, cited in the text, a very accurate description and engraving of this mosaic.

house of Z eringen, in 1218*, Ulrich of Kyburg obtained the sovereignty, in right of his wife Anne, sister of the last duke Berchtold the Fifth. It came by marriage into the possession of Eberhard Count of Hapsburg-Lauffenburg; who sold it to his cousin Rodolph of Hapsburg, afterwards Emperor. During this period a continual rivalry subsisting between Bern and Friburg, they were frequently engaged in hostilities: at length all differences were composed; and the two cities, in 1403, concluded a perpetual alliance.

Friburg continued under the dominion of the house of Austria, and was concerned in all the quarrels in which that family was engaged with the Swiss republics, until the middle of the fifteenth century; when, by a very singular revolution, it renounced all allegiance to the Archduke Albert, and put itself under the protection of the Duke of Savoy. From this  era it occasionally assisted the cantons against the house of Austria; and in the war between the Swiss and Charles the Bold, its troops had a share in the victories of Granson and Morat. Soon after the battle of Morat, it became a free and independent republic; and, in 1481, was admitted a member of the Helvetic confederacy.

The situation of the town, though not one of the most beautiful, is certainly one of the most picturesque and wild in Switzerland. It stands partly in a small plain, partly on bold acclivities, on a ridge of rugged rocks, half encircled by the river Sane; and is so entirely concealed by the circumjacent hills, that the traveller scarcely catches the smallest glimpse, until he bursts upon a view of the whole town from the overhanging eminence.

The fortifications, which consist of high stone walls and towers, enclose a circumference of about four miles; within which space the eye comprehends a singular mixture of houses, rocks, thickets, and meadows, varying instantly from wild to agreeable, from the bustle of a town to the solitude of the deepest retirement. The Sane flows in such a serpentine course, as to form, within the space of two miles, five angles between which the different parts of the current are nearly parallel to each other.

On all sides the descent to the town is extremely steep, and in one place the streets even pass above the roofs of the houses. Many of the edifices are raised in regular gradation like the seats of an amphitheatre; many overhang the edge of so deep a precipice, that on looking down, a weak head would be apt to turn giddy: and an unfortunate lover, repulsed in his suit, might instantly terminate his pains, by taking a leap from the parlour window, without the trouble of a journey to Leucate, or to the rocks of Meillerie.

But the most extraordinary point of view is from the Pont-neuf. To the north-west, part of the town stands boldly on the sides and the piked back of an abrupt ridge; and from east to west a semicircle of high perpendicular rocks is seen, whose base is washed and undermined by the winding Sane, and whose tops and sides are thinly scattered with shrubs and underwood. On the highest point of the rocks, and on the very edge of the precipice, appears, half hanging in the air, the gate of the town called Bour-

* The house of Z eringen was descended from the ancient counts of Alsace, by Berchtold count of Brisgau. His grandson, Berchtold the Second, built the castle of Z eringen, situated near a village of the same name, not far from the present town of Friburgh, capital of the Brisgau. Upon the demise of Berchtold the Fifth, the last duke without male issue, his territories were divided between his collateral heirs, the dukes of Teck, and his two sisters Agnes and Anne. Agnes married Egeno, Count of Urach, by which marriage he obtained possession of Friburg in the Brisgau; his posterity were called counts of Friburg. Anne married Ulrich, Count of Kyburg; their daughter Hedwig was wife of Albert Count of Hapsburg, and mother of the Emperor Rodolph the First.

guillon : a stranger standing on the bridge would compare it to Laputa, or the flying Island in Gulliver's Travels, and would not conceive it to be accessible but by means of a cord and pulleys. In the midst of the river I observed a large fragment of stone, which a few years ago fell from the rocky heights, was carried under one of the arches, and in conjunction with other fragments stopping the current, raised it more than ten feet above the usual level, threatening the lower parts of the town with a sudden inundation.

A traveller fond of wild and romantic scenery will not fail to visit the Moulin de la Motte, in the valley of Goteron : it is a miller's dwelling, hollowed in the midst of an impending rock, near it issues a small torrent, which, turning the mill, falls within a few paces into the Sane. This singular dwelling seems so far removed from "*the busy hum of men*," as to be rather situated in a remote solitude, than within the walls of a fortified town. Near it is an ascent of four hundred steps to the Place des Fontaines, in the upper part of the town.

The valley of Goteron, on the north-west of the town near the bridge leading to Bern, takes its name from the Goteron, a small rivulet ; it is extremely narrow, above two miles in length, and is bounded on each side by overhanging rocks of sand-stone, Vernet, the celebrated landscape painter, studied these rocks with great attention, and frequently declared that, excepting those of Tivoli, he never saw any whose varying tints had a more pleasing and harmonious effect. The valley contains several mills, an iron foundery, where the ore brought from Franche Comté is forged, and a manufacture of printed linen and cotton, lately established by some merchants of Neuchatel, under the protection and encouragement of government.

The houses of Friburg, constructed with a grey sand-stone, drawn from a neighbouring quarry, are neat and well built ; but the whole town has a dull and inanimate appearance.

Among the few objects worthy of particular notice are, the cathedral, an elegant Gothic edifice, erected in the latter end of the fourteenth century, and remarkable for the height and solidity of the tower ; the town-house an ancient building, which formerly composed part of the palace belonging to the dukes of Zæringen, and also a lime tree, in the middle of the principal square. Tradition reports, that this tree was planted by one of the soldiers, on the 22nd of June 1477, on his return from the battle of Morat ; an emblem of Swiss liberty, which took deep root on the memorable defeat of Charles the Bold, and thus remaining firm against the conflicts of time, has continued to spread and flourish to the admiration and example of future ages.

The society of Friburg is extremely agreeable ; the gentry are frank and hospitable, and blend French politeness with great simplicity of manners. Dinner is usually served at twelve ; and supper seldom later than eight. I never experienced a more cordial reception in any town of Switzerland.

The Bishop of Lausanne, called here the Bishop of Friburg, resides in this city. He is appointed by the Pope, usually at the recommendation of the French Court ; and his revenues including a small pension from France, and from the abbey of Hauterive, of which he was abbot, amount to about £400 *per ann.* His diocese extends over the whole canton, and part of that of Soleure ; in all his acts and deeds he signs himself Bishop and Count of Lausanne, and Prince of the German Empire.

The present bishop, Bernhard of Lenzburg, is a man of letters, and an honour to his profession : he is employed in preparing for the public a biography of the illustrious and learned men born in the canton of Friburg, who have distinguished themselves, either in the civil, military, or literary line.

This canton is entirely catholic. Its population in 1785 may be estimated from the following table :

The town contained	5,011
The environs	15,500
The remainder of the canton	33,078
Absentees	4,000
Number of inhabitants	57,589

The sovereign power resides in the Great Council of Two Hundred ; comprising the two Avoyers, the Chancellor, the Grand Sautier, the Senate or little Council of Twenty-four, the Sixty, from which body are chosen the bannerets and principle magistrates, and the remaining hundred and twelve members, who are simply denominated Burghers.

The only persons eligible to this sovereign council, and capable of enjoying any share in the government, are the *secret* burghers, or a certain number of families divided into four *bannieres*, or tribes of the town ; they are called *secret* burghers, to distinguish them from the other citizens, partly inhabiting the town, and partly the twenty-four parishes in the environs, who enjoy the right of appointing the avoyers, from certain candidates proposed by the Sixty, and of annually confirming them. Hence many authors have called this government aristo-democratical, but erroneously ; for, as the power of the people is confined to the act of choosing and confirming the two avoyers, and as the supreme authority absolutely resides in the Council of Two Hundred, necessarily supplied by a limited number of patrician families, the government is, in the strictest sense, an aristocracy.

Instead of troubling you with an uninteresting detail of those points in which the government of Friburg resembles that of the other aristocratical cantons, I shall confine myself to those peculiar circumstances by which it is discriminated from them. This difference may be principally said to consist in three articles.

1. The *blind ballot*, or mode by which several important offices are supplied, and particularly by which the members of the senate and the sixty are chosen, this mode of election was instituted in order to prevent venality, and is too singular not to be distinctly explained. The names of the candidates are placed privately in a box, containing as many partitions as there are persons who solicit the charge. Into each of these partitions, the electors throw in their suffrages as chance directs, without knowing to whom they may happen to give their votes ; and the candidate who has the most of these casual ballots is elected.

2. The clause which excludes certain noble families from the office of banneret, and from the *secret chamber*. These families are sixteen in number ; some were acknowledged noble, even as early as the foundation of the republic ; others successively obtained titles of counts and barons from the foreign princes to whom they were attached, and in whose armies they served.

3. But the most remarkable circumstance which discriminates the constitution of Friburg from that of the other aristocratical cantons, is a committee distinguished by the name of the *Secret Chamber*, which, though, not any public or responsible part of administration, is yet the concealed spring that puts the wheels of government in motion. As the prerogatives and operation of this *secret chamber* are in general little known, and still less understood, a concise account of its origin and constitution will not be uninteresting.

The

The *Secret Chamber*, forming a part of the Council of Sixty, is composed of the four bannerets, and twenty-four members; the four bannerets are chosen by the Council of Two Hundred from the four tribes, and remain in office four years; the twenty-four are nominated by a majority of their own body, and continue for life.

The *secret chamber* assembles ordinarily four times in the year, or oftener if occasion requires, and is convoked by a banneret. The two principal meetings are between the Sunday before St. John's day and the 24th of June, usually on the anniversary of the battle of Morat, for the purpose of appointing the vacant places in the council of two hundred; and on Tuesday in Whitfun-week, when they supply the vacancies in their own body.

Its origin is thus traced in the records of the republic. From 1347 to 1387, the three bannerets nominated twenty persons from each of the three tribes into which it was then divided, and these sixty assembled on the Sunday before St. John's day, to establish the senate, and elect the treasurer; from hence is derived the origin of the sixty, and of the assembly which meets on the Sunday now called *Secret Sunday*. It consists of the whole council of two hundred, excepting the avoyers and senate, and is presided by the chancellor, the four bannerets, and the members of the *secret chamber*, who take the places of the senators. This assembly reviews, confirms, or censures, if necessary, the senators, the bannerets, and the sixty, (the members of each tribe retiring, while their conduct is examined by the remainder,) and fills up the vacant places in the senate, and the sixty, by blind ballot.

In 1387, the nomination of the sixty was transferred from the bannerets to the assembly which met on the *Secret Sunday*, and that assembly was also empowered to appoint the senate, the treasurer, the sixty, and the remaining members of the two hundred. By a charter of the same year, four coadjutors, drawn from the sixty, were given to each banneret, who were chosen in the same manner as the bannerets, separately by each tribe, and this may probably be considered as the origin of the *secret chamber*. A charter of the year 1392 confirms the *Secret Sunday* in the right of nominating the sixty, and confers on the bannerets that of choosing the *prud-hommes*, who accompanied them when they convoked the people on St. John's day, and probably also that of appointing their coadjutors. This nomination took place, as at present, on the Tuesday in Whitfun-week. The town being at that period only divided into three tribes, the coadjutors were limited to twelve; when a fourth tribe was added, their number was augmented to sixteen.

A charter dated 1404 confirms, in many instances, these arrangements; but does not grant to the *Secret Sunday*, the nomination of the two hundred; a right at that time enjoyed by the bannerets, who shared it with their coadjutors, the *secrets*: thus probably arose the power of appointing the members of the two hundred, since constantly exercised by the bannerets and *secrets*.

The same charter orders the bannerets to assemble on Whit-Tuesday, in conjunction with the sixty of the preceding year, for the purpose of electing four members of the sixty from each tribe, who should accompany the bannerets when they convoked the assembly of burghers and inhabitants on St. John's day; and two additional members for convening the assembly of *Secret Sunday*. Here then are six persons from each tribe employed in these convocations, or in all twenty-four persons, the number of members who now form the *secret chamber*. The same charter also enjoins the bannerets and *secrets* to collect the votes in all elections and deliberations; an office which they continue to exercise to this day.

As early as the beginning of the fifteenth century, the bannerets and *secrets* assembled at Christmas and Easter, for the purpose of preparing such motions as were to be laid before the council of two hundred, which adopted, modified, or rejected them.

As the bannerets probably continued to employ the same coadjutors in convoking the assemblies on St. John's day, and on *Secret Sunday*, the *secret chamber*, composed of these twenty-four coadjutors, at length became a permanent body, and enjoys the following prerogatives: 1. It convokes, in conjunction with the bannerets, the people on St. John's day, and the assembly which meets on *Secret Sunday*. 2. Prepares and draws up all the laws and ordinances, enjoys the sole power of proposing in the Great Council, and by means of the bannerets, of putting a negative on any motion, by simply affirming it to be contrary to the constitution.

3. Collects the votes in the election or confirmation of the avoyer, at the meeting of the people on St. John's day, and in the deliberations of the Great Council. 4. Fills up all the vacancies in that Council. 5. Suspends, deposes, confirms, and censures its members. 6. Confirms, or suspends and deposes its own members; makes regulations for the interior administration of its own body; appoints the manner of electing its own members, and filling up the vacancies in the Great Council. 7. Fixes on the time for those elections, and the sum of money which each member is permitted to receive from those elected. 8. It can exclude all candidates from being chosen members of the senate, of the sixty, from the office of bailiffs, and other important charges, either by refusal to present, or by rejecting them as incapable. All these prerogatives, founded on authentic documents, or immemorial usage, were confirmed by the council of two hundred, in 1606, 1623, and particularly in 1716.

All affairs of government, and all debates in the national assemblies, are carried on in the German language; and as the French tongue is spoken in the greater part of the canton, and particularly by the gentry, many members of the Great Council do not understand the debates.

Such was the general form of government when I first visited Friburg in 1776; since that period it has undergone some very important alterations, the substance of which I shall communicate to you in the following letter.

LETTER LIII. — *Origin and Suppression of the late Troubles in the Canton of Friburg. — Changes in the Form of Government.*

THE exclusive right of sharing in the administration of affairs, enjoyed by a certain number of families, in the aristocratical cantons, has, in conjunction with other concurrent circumstances, occasioned revolts in those of Zurich, Bern, and Lucern, which were quelled by the interposition of the other Helvetic powers, and prevented from again breaking out, by judicious regulations. Friburg having exhibited a recent example of the same kind, I endeavoured to trace the origin and progress of those intestine commotions, which have been followed by a considerable alteration in the form of government. Accordingly, I now lay before you the result of my inquiries, impartially drawn from repeated conversations with persons of both parties, from an attentive perusal of several publications written during the course of the troubles, and from some curious manuscripts, which I fortunately obtained.

In the latter end of April 1781, an insurrection suddenly broke out in the bailliage of Gruyeres, a district in the southern part of the canton, whose inhabitants are extremely jealous of their liberties, and zealously attached to all the customs of their ancestors.

Irritated

Irritated by a few impolitic acts of government, by the petty vexations of the bailiffs, by the secularization of Val Sainte, a convent of Chartreux, by the abolition of several fasts and festivals, and excited by the artifices of Chenaux and Castellaz, two designing leaders, they rose in open rebellion.

Peter Nicholas Chenaux, the chief of the sedition, was a native of la Tour de Treme, in the bailliage of Gruyeres: he was greatly embarrassed in his circumstances, and being arrested and imprisoned in 1771, for his disobedient and turbulent conduct, was highly exasperated against government. He was in the thirty-eighth year of his age, of a good figure and expressive countenance, and being a man of rude but popular eloquence, and of an overbearing spirit, obtained a considerable influence over the artless inhabitants. His abettor, John Nicholas Andrew Castellaz, was a burgher of Friburgh, and advocate of Gruyeres; versed in all the chicanery of the law, conversant in the history and ancient records of his country, and well acquainted with the privileges of the people, he was the first to expose the slightest oppressions of the bailiff, and to remark wherever government seemed to infringe their immunities, or issued edicts contrary to long-established usage. Having a loud voice, and vehement elocution, he was formed for popular assemblies, and principally directed Chenaux in all difficult emergencies; he drew up the principal remonstrances which, exaggerating every defect in the constitution, tended to render government odious, and to spread discontents among the people.

These two leaders, in conjunction with other accomplices, availed themselves of the public dissatisfaction, and engaging a considerable number of adherents, held, in the month of April 1781, regular meetings at Bulle. On the 24th, in particular, they insinuated before a large assembly, that government had formed a design of imposing additional taxes of a grievous nature, particularly on horned cattle and horses, and even of withholding the annual present of salt, which they shared with the burghers of Friburgh. They represented that the secularization of Val Sainte, and the abolition of certain festivals, implied a settled determination to overturn the religion of their ancestors; that the governing party had many enemies; that the despotism of the secret chamber was held in universal abhorrence; that the nobles were discontented, on account of their exclusion from the principal charges of the commonwealth; and that the burghers and inhabitants of the twenty-four parishes were jealous of the exorbitant rights possessed by the secret burghers. They added, the time was arrived when the people might venture with impunity to petition for redress of grievances; a strong party in the capital was ready, on the first moment of their appearance, to join them; and multitudes would repair from all quarters to the standard of liberty.

Having, by these and similar insinuations, increased the number of their adherents, it was finally concluded that, on the 3d of May, they should secretly repair to the capital, and, assembling in the market-place, force the arsenal; that having provided themselves with arms, they should secure the garrison, constrain the Great Council to redress their grievances, and make those changes in the constitution, which could alone secure to the people a mild and just administration.

Notwithstanding the general ferment which prevailed among the people in the bailliage of Gruyeres, and the number of persons concerned in this conspiracy, government received no notice of the plot before the 29th or 30th of April. On the first certain intelligence of the intended insurrection, the council of war, who immediately assembled on the occasion, dispatched some troops to arrest Chenaux; but having received information from one of his accomplices in the capital, he escaped to la Tour de Treme, and, being joined by the most desperate of his adherents, determined to take arms without

delay,

delay. Having, by means of his emissaries, excited the spirit of rebellion among the people, who were informed that Chenaux had narrowly escaped an arrest for his patriotic attempts, he ventured to repair to Gruyeres, where Castellaz had already collected a considerable party. The advocate, having assembled a large body during the night, expatiated with much force and eloquence on the several grievances, and used various arguments in favour of an immediate revolt, similar to those which were urged on the 24th of April. He inflamed the populace to such a degree of frenzy, that they flew to arms at five in the morning, and, imprisoning the bailif, erected the standard of rebellion. The alarm being given, Chenaux advanced to Posieux, which was fixed for the place of general rendezvous; from whence he addressed a letter to the magistrates of Friburg, disclaiming all design of violence, and requiring only that the petitions and remonstrances of the people should be taken into consideration.

On the next morning he conducted about sixty of his partisans to a height overlooking Friburg, with an intention of surprising the city; but finding the gates shut, the fortifications guarded, and not being joined, as he expected, by the inhabitants of the twenty-four parishes, he retired first to Posieux, and afterwards to Avry, where he expected a reinforcement, which Castellaz and his emissaries were collecting in various parts of the canton.

During these proceedings, the magistrates of Friburg were active in preparing for the security of the town. The council of war sat the whole night; a night of extreme terror and anxiety to many of the inhabitants. The account of the bailif's arrest, of Chenaux's escape, and his arrival at Posieux, within two leagues of the capital, with a corps of rebels whose number rumour exaggerated, was no sooner divulged, than a general panic prevailed. The garrison scarcely consisted of more than fifty soldiers, and those chiefly invalids; the fortifications were weak and extensive; not more than two hundred burghers could be mustered to defend the ramparts, and the insurgents were supposed to possess a strong party even within the walls. If in this moment of disorder, aided by the darkness of the night, Chenaux had attacked the town, he might have carried it by assault. But the first emotions of terror had no sooner subsided, than the besieged assumed a spirit and vigour adequate to the alarming situation of affairs; they ran to arms; the nobles, burghers, and even strangers, crowded to the ramparts, and prepared for a vigorous defence; their confidence was raised by the arrival of some militia from Morat, who entered the gates at nine in the morning, and by the expectation of more effectual succours from the canton of Bern.

On the preceding evening a messenger was dispatched to Bern, requesting immediate assistance. He arrived soon after midnight: the avoyer d'Erlach, in the 85th year of his age, instantly summoned the Sovereign Council. "Gentlemen," exclaimed the venerable magistrate, "on other occasions you have a year to deliberate; you must now instantly act: Friburg is besieged by an army of rebels; let those who approve sending troops to her relief hold up their hands." The members unanimously assenting, twelve hundred troops were commanded to march without a moment's delay. Before the close of the evening Major Rihimer entered Friburg at the head of two hundred soldiers, who passed unmolested through flying parties of the insurgents; at midnight a hundred and fifty dragoons arrived, and on the next morning eight hundred infantry completed the reinforcement.

The arrival of these troops inspired the magistrates of Friburg with perfect confidence and security, and saved the town from the most imminent danger. Nevertheless the emissaries of Chenaux and Castellaz, ranging about the country, sounded the church bells in the various parishes, exclaiming that their religion and liberties were threatened

with

with immediate annihilation. The rebel forces were continually augmenting; they were joined by many inhabitants in the environs of the town, and the least success would have increased their number. Chenaux had several emissaries within the city, and before mid-day threatened Friburg at the head of above two thousand men, eight hundred of whom were provided with muskets, the remainder with only clubs, or the first weapons which chance presented. Having occupied the heights, he found his followers wavering and irresolute, and struck with a general panic on receiving the news, that a large body of troops from Bern had reinforced the garrison. He posted his followers, however, in an advantageous situation; waiting with considerable anxiety till his forces should be increased, and an opportunity present itself of commencing hostilities, or obtaining a general amnesty for himself and his adherents.

In this situation of affairs, Major Rihimer led a detachment of one hundred and eighty dragoons from one of the gates; while Lieutenant Froideville, at the head of seventy men and twenty dragoons, sallied from another. The major, driving the besiegers from a height which commanded the town, continued his march with an intent of attacking them in front, and at the distance of about a cannon-shot reconnoitred eight hundred of the enemy drawn up in order of battle, but without artillery. The insurgents no sooner observed the cannon planted against them, and perceived that the commander was an officer of Bern, than they dispatched repeated messengers to assure him they were only collected to petition for a redress of grievances, and entreated him to spare the effusion of blood. Having received an answer, that he would undertake to intercede in their behalf, if they would instantly lay down their arms, and deliver up Chenaux; they agreed to the first point, but refused the second. The major continued to enforce his demand, and gained time, until Lieutenant Froideville appeared unexpectedly in their rear. The two commanders repeating their promises, that their just remonstrances should not be neglected, the whole troop surrendered themselves prisoners. Four of the principal ringleaders being secured, the remainder, having delivered in their names and places of abode, were permitted to retire without molestation.

Chenaux, either finding it impossible to excite his followers to sustain the attack, or being deficient in personal courage, was among the first who betook himself to flight. Wandering from village to village, he was about midnight observed near Posieux by Henry Roslier, one of his principal accomplices. Roslier, willing to save his own life by betraying his leader, seized him by the collar, reproached him for seducing the people into rebellion, and for cowardice in forsaking them, and, with the assistance of Chavallet and Python, two other insurgents, wrested from him a double-barrelled pistol, and conducted him towards Friburg. Chenaux, suddenly disengaging himself, drew out a knife, wounded Roslier in several places, and endeavoured to escape towards Posieux; but Roslier snatching a musket from one of his followers, soon overtook him, and summoned him to surrender under pain of instant death. Chenaux, deriving courage from despair, attacked Roslier with inconsiderate fury, received the assailant's bayonet in his breast, and expired on the spot.

The death of the leader, the voluntary surrender of his principal associates, and the flight of Castellaz, put an end to this ill concerted enterprise. Six hundred insurgents, the only remains of the rebels, were on the next morning observed hovering about the capital; but learning the fate of their leader, and the surrender of his followers, and being attacked by a corps of grenadiers, dispersed without resistance.

But although the insurrection was thus suppressed, and all parties concurred in chastising rebellion; yet the spirit of discontent had spread itself with too great violence and rapidity among all ranks of men, not to convince the rulers of the state, that the seeds

of the revolt lay deeper than appearances seemed to suggest. For it was obvious that the petty vexations of the bailiffs, the abolition of unnecessary fasts and festivals, and the seeming violation of a few trifling immunities, however exaggerated by the artifices of the most designing leaders, were not sufficient to excite the people of Gruyeres to the desperate extremity of taking arms against their lawful sovereigns, if government had not been extremely unpopular; if several grievances of an oppressive nature had not required to be redressed; several odious restrictions to be removed; and several defects in the constitution to be remedied. Influenced by these considerations, government, in a manifesto, issued on the 11th of May, after granting an amnesty, except to a few ring-leaders, found it necessary to invite the subjects of all denominations to present remonstrances, to make representations, and to petition against grievances. About the same time the three cantons of Bern, Lucern, and Soleure, dispatched deputies to Friburg, offering their mediation towards composing the dissensions of the republic.

In consequence of this manifesto, many petitions and remonstrances were presented to the Great Council, either claiming the renewal of obsolete rights, the removal of certain restrictions, or the abolition of various taxes; demanding redress of grievances, and an amendment of the constitution; or complaining of an infringement of popular franchises. As it would be needless to mention all the complaints and plans which were dictated by the spirit of party and the frenzy of innovation, I shall confine myself to three principal points of dispute, which occasioned the most violent altercations; and which would never have been compromised, had not the three mediating cantons effectually interfered: 1. The disqualification of the nobility from the office of bannerets and *secrets*; 2. The exorbitant prerogatives and influence of the *secret chamber*; and 3. The exclusive privileges of the *secret burghers*.

1. With respect to the first point in agitation, it may be remarked, that the exclusion of the noble families from the charge of bannerets and of *secrets* appeared sufficiently reasonable, as long as the government was democratical, and the bannerets were, according to the ancient charters, chosen from the people, and of course when neither they, nor their coadjutors, the *secrets*, could be taken from the nobility. But when the government was changed from a democracy to an aristocracy, and the municipal administration no longer subsisted, particularly when the troubles excited by the bannerets, in 1553, obliged the council of two hundred to transfer from the people to themselves the right of appointing those magistrates; the disqualification of the nobility, which was founded on democratical jealousy, ought to have no longer subsisted. Their remonstrances were therefore just, and would have been still more reasonable, if the troubles of the republic had not rendered them dangerous.

2. As to the second point in question: the extensive power and extraordinary influence of the *secret chamber* could not fail to create jealousies and discontents among all ranks of men. For, on considering the detail of their prerogatives, as laid down in the preceding letter, it must appear, that although the members of that committee enjoyed no positive authority in enacting or annulling laws; yet by being the depositaries of the constitution, and the ultimate framers of all decrees; by having the sole right of proposing, and a negative on all the resolutions of the Great Council, no motion could pass without their concurrence. It is also no less obvious, that the power of making regulations for the interior administration of their own affairs, mysteriously concealed from the knowledge of the Sovereign Council, might give rise to dangerous abuses; that the members of the chamber eventually enjoyed, by the power of excluding from all charges, that of nomination; that by appointing to the vacancies in their own body it was to be feared, what in effect happened, that an admission into the *secret chamber* would

be chiefly confined to a few families; that, as they filled up all the elections in the council of two hundred, these elections would depend entirely upon a few persons who possessed the greatest credit, and that thus the government would gradually tend to a narrower oligarchy.

3. The third point in debate, namely, the exclusive privileges of the *secret* burghers, opened a larger and more dangerous field of contention. The demand of the other burghers that, according to the antient form of government, the right of admission into the Great Council, instead of being exclusively confined to the *secret* burghers, should be extended to them, seemed to militate against the fundamental laws of the republic, and to involve a total change in the very essence of the constitution.

The remaining part of the year was employed in agitating these points of dispute; which gave rise to many political and historical discussions, and occasioned several curious researches into the origin of the *secret chamber*, and the rise of the distinction between the *secret* and other burghers. For the purpose of ascertaining these questions, the popular party demanded access to the archives; but met with delays and refusals on the part of government, which considered such an enquiry of dangerous tendency, and calculated to introduce factious innovations in the state.

Exasperated by repeated refusals, the populace began to shew signs of discontent, and to assemble in crowds at the place where Chenaux was put to death: they marched in solemn procession, bearing crosses and colours, and chaunting hymns and *requiems* in honour of this *martyr* (as they called him) to the religion and liberties of his country. These tumultuous meetings would probably have ended in another insurrection, if the Bishop of Lausanne had not forbidden them, under pain of excommunication. Towards the conclusion of the year, deputies from Bern, Lucern, and Soleure, arrived at Friburg, for the purpose of composing the differences subsisting in the capital; and in order to conciliate the burghers, who were no less violent in favour of the nobles than in extending their own immunities, prevailed upon administration to repeal the disabling clause. With respect, however, to the other subjects of controversy, they conceived it dangerous to entrust the leaders of a heated populace with the records of government, which might be attended with projects of endless innovation; and proposed that the Great Council should order a committee to draw up a declaration setting forth the privileges and franchises of the burghers, and that for the future this declaration should be considered as a fundamental code.

But although these essential points were obtained; yet so many subjects of altercation still remained, that for some time all further plans for composing the differences were fruitless. The deputies repaired to Morat, where they were employed, from the 25th of April 1782 to the 25th of July, in hearing appeals, revising and considering the arguments on both sides, and consulting on the best methods to conciliate the two parties.

The burghers however, dissatisfied with the chiefs of the aristocracy, formed a resolution to refuse taking the annual oath of allegiance to the Great Council; nor were they without great difficulty prevailed upon by the three deputies in person to perform the usual homage. Displeased nevertheless with the deputies themselves, and considering them as partial to administration, they delivered a memorial, in which, after representing their grievances, they threatened to appeal to the general diet of the thirteen cantons assembled at Frauenfeld.

A measure of so alarming a nature, tending to produce a material change in the principles of the Helvetic Union, was strongly reprobated by the members of that confederacy. For it was urged (and with great reason) that by introducing an innovation of such public notoriety, the disputes between the respective governments and their sub-

jects would be liable to become more numerous and dangerous, and that in the end each canton would fall under the guardianship of the remainder. On the other hand, what rendered the present crisis still more alarming was, that the court of France, consulted by several leading members in administration, tendered her good offices towards composing the dissensions. And although the three cantons reprobated, with consistent dignity, the intervention of any foreign power, and declared that Friburg, on accepting such a mediation, should be excluded from the Helvetic Confederacy; yet it was apprehended, that on an increase of the troubles the French would find some pretext to interfere in the affairs of Friburg, as they were actually engaged in those of Geneva.

Influenced by these considerations, the three mediating cantons, anxious to bring matters to a speedy conclusion, prevailed upon the ruling party to consent to several alterations in the constitution. At length, after various delays, disputes, and conferences, the deputies published on the 19th of June a manifesto, declaring, that on an impartial and diligent review of the various memorials and manifestos on both sides, the assertions of the burghers were groundless, and their demands unconstitutional; that the present form of government had subsisted above two hundred years, and that the supreme authority resided in the members of the Great Council. To this declaration they added, that the three cantons would defend and protect the existing form of government, and would never permit an appeal relating to the amendment or alteration of the constitution, to any other power than the Supreme Council of the republic; *that* tribunal being alone competent to such questions. At the same time they recommended to government a repeal of the disabling clause, which excluded the nobility from the office of banneret or *secret*; to admit some new families into the *secret* burghership; to hear and redress any remaining grievances, and to correct any defects in the constitution.

This declaration being accepted by government, was read on the 28th of July to the burghers assembled in their respective tribes; but several among them protesting formally against it, the three principal ringleaders of this opposition were banished, their protests disregarded, and tranquillity restored.

Soon after this final pacification, the Great Council passed several acts for the redress of grievances, removed some burdens and usages which had been the object of general complaint, and amended the constitution in the following points: 1. A perfect equality is established between the *secret* burghers; the antient nobles are no longer disqualified from holding the office of bannerets or *secrets*, but do not enjoy any precedence in consequence of their titles, which in all acts and deeds within the canton of Friburg are omitted. In return, all the *secret* burghers are, without distinction of persons, esteemed equally noble. 2. Sixteen new families have been admitted into the *secret* burghership, which addition nearly completes the number of a hundred families; and it is further enacted, that on the extinction of any three families, an equal number shall be elected without delay. 3. The vacancies in the sixty, instead of being indiscriminately supplied from the members of the two hundred at large, are now filled up according to seniority.

4. But the great and principal alteration in the form of government respects the new constitution of the *secret chamber*, which is changed in the following important points:

1. The members of that committee, instead of being nominated by a majority of voices in their own body, are now taken from the sixty, and chosen by *blind ballot*. The candidates are no longer under the necessity of being presented by a member of the *secret chamber*; but on addressing themselves to their banneret, the latter is obliged to deliver in their names to the *secret chamber*. As each vacancy is supplied from the particular tribe in which it happens, this alteration must reduce the candidates to three or four.

in order also to prevent cabal or corruption, if there shall be only one candidate, he is not necessarily elected; but it must be decided by lot, whether he shall be chosen or rejected, and if there should be a majority of ballots for the negative, he must wait till the subsequent year before he can have another chance of being appointed. Each member on his election shall pay no more than 1*l.* 10*s.* to each banneret and *secret*; and the money shall be delivered to the secretary, and by him be equally distributed. 2. Neither father and son, nor two brothers, nor more than two persons bearing the same name, shall be admitted at the same time into the *secret chamber*. 3. The members still retain the right of filling up all the vacancies in the Council of two hundred, with the usual provisions, that the candidates shall be twenty years of age, and that the promotion shall take place every two years. It is further decreed, that on oath, under pain of deprivation, no more than 1200 crowns * shall be received for the nomination; and that the said sum, instead of being solely appropriated to the person who is to appoint, shall now be delivered to the secretary, to be by him equally distributed among the four bannerets, when either of them shall elect, or among the members of the *secret chamber*, belonging to the tribe in which there is a vacancy, when the turn devolves upon either of them †. It is moreover added, that if the person presented by the banneret, or a *secret*, shall be rejected by two thirds of the chamber, another may be presented; but if the second is rejected, the right of presentation shall be transferred to the banneret, or *secret*, next in rank of the same tribe. It is also stipulated on oath, that all promises of exchanging presentations, or similar engagements, shall not be valid for the future; those only excepted which are now absolutely subsisting, and which concern either a son of the contracting party, or a person whose name is specified. 4. The power of excluding persons from the principal charges of government is still reserved to them; but they are exhorted to use it with great precaution and care. 5. The interposition of a negative, exercised by a single banneret, is no longer sufficient to reject a motion in the Great Council. The opposition, in order to render it valid, must now be founded on a precise law, and unanimously approved by the four bannerets; but if one shall dissent, it is then referred to the Council of two hundred, which shall decide, by a majority of two-thirds, whether the negative shall be confirmed or rejected. 6. The power of proposing, formerly vested only in the *secret chamber*, is now extended to the members of the Senate and the sixty; and the mode of deliberating on such propositions and motions is attended with forms more or less complicated, as the object is more or less important. In all instances the laws are prepared and finally drawn up by the secret chamber. 7. The *secrets* shall take an oath before the bannerets as delegates of the Great Council, to obey all the ordinances of that assembly, and to observe the present articles, without retrenching or adding to them. And it is further ordered, that no alterations shall be made in the present constitution of the *secret chamber*, unless approved by three fourths of their own body, and by two thirds of the Great Council ‡.

* Of 25 each each, the whole sum 17*l.* 13*s.* 6*d.*

† Each banneret to nominate the first vacancy in his own tribe, and then each *secret* by rotation, according to seniority, in his particular tribe.

‡ On considering the present disturbances, the number of the disaffected, and the exclusive privileges of the secret burghers, it was natural to suppose that the French would have found more adherents in this canton than in any other part of Switzerland; but the reverse was the truth. No innovation was made in the constitution before the surrender of the town; and the magistrates shewed less inclination than the people to resist the French. On the same night in which Soleure was invested, a column of the French army, under the command of General Pigeon, marched towards Friburg, surprised the outposts, and summoned the magistrates, who were roused from sleep by this unexpected attack, to an immediate surrender, while the French adherents in the town seized the arsenal. The magistrates inclined to capitulate, were deterred by
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LETTER LIV.—*Cheese of Gruyeres.—Hermitage near Friburg.*

THE canton of Friburg contains a small portion of arable land, but abounds in pastures; accordingly, its principal articles of exportation consist in horned cattle, cheese, butter, and hides.

The cheese, well known under the name of Gruyeres, which is exported in large quantities, is made on a chain of mountains about ten leagues in length and four in breadth, extending from the bailliage of Schwartzzenburgh to the districts of Vevay and Aigle in the canton of Bern. All the cheese, though made in the same manner, is not of the same quality; a difference probably arising from the diversity of the soil; the same plants not growing at all heights, and the lower pastures, called *gites*, being not in such estimation for their goodness as those in the most elevated situations.

The whole district is divided into greater or lesser farms, which the proprietors let out in leases of three or six years, at the annual rate of 16s. * to 1l. 10s. during five months for each cow, according to the nature or elevation of the ground: the lower pastures, though not of the best quality, are the dearest because being sooner freed from the snow, and later covered with it, they afford food to the cattle for a longer time.

Each farmer, having rented a mountain, hires from the different peasants in the canton from forty to sixty cows, from the 15th of May to the 8th of October, and pays at the rate of from 1l. 6s. to 1l. 13s. 6d. per head; each cow upon an average yields daily from twenty to twenty-four quarts of milk, and supplies two hundred pounds † of cheese during the five months. On the eighteenth of October the farmer restores the cows to the different proprietors: The cattle are then pastured in the meadows which have been twice mowed, until the 10 or 11th of November, when on account of the snow, they are usually removed to the stables, and fed during winter on hay and after-grass.

As the mountains in the canton of Friburg afford pasture for at least 15,000 cows, it may be estimated that they annually supply about 30,000 hundred weight of cheese fit for exportation; beside 2,000 or 3,000 after their return from the mountains, exclusive of a thinner sort, which is made in various parts of the canton. The cheeses fit for exportation weigh from forty to sixty pounds each, and are sold from 1l. 17s. to 2l. per hundred weight. Beside the cows which are pastured during summer in the mountains, the canton contains about 12,000 belonging to the landholders, which supply their families with milk.

The buildings necessary for making cheese consist of a *chalet* or cottage, which contains a room with a furnace for boiling the milk, a cellar where the milk is preserved, and

the influx of 4000 peasants who flocked into the town, recovered the arsenal, and with 1500 Bernese troops, prepared to defend it to the last extremity. A message being dispatched to General Pigeon that the magistrates, overpowered by the people, could not offer a capitulation, some shells were thrown into the town, several houses set on fire, a breach made in the walls, and the French prepared to storm the place. The troops of Bern, perceiving the untenable state of the fortifications, and the timidity of the magistrates, marched out with 30 cannon, and accompanied by the 4000 peasants, without being molested by the enemy. The town was instantly occupied by the French, and a provisional government elected by the districts of Friburg superseded the former magistracy. *Planta*, vol. ii. p. 424.

* This letter was written in 1796, since which period perhaps the prices are altered.

† Each pound contains seventeen ounces and a fraction.

a stable

a stable for sixty or seventy cows; near it is a kind of dairy-room, kept in an equal degree of temperature, where the cheeses are every day turned and salted. The thickness of the vat, in which each cheese is pressed, is about four inches. The casks for exportation contain ten cheeses, excepting those destined for Italy, which hold only three, in order to be conveyed by mules across the Great St. Bernard. The cheeses well packed up bear the transport into the most distant countries; they ought to be kept in a damp place, and frequently washed with white wine, to preserve them from insects. When the cows return from the mountains, a species of cream cheese is made in autumn, and even in winter; it is much esteemed, and is dearer than that of Gruyeres. The greater part of the salt used on these occasions is drawn from Franche Comté; a small quantity from Lorraine and Bavaria, but its quality is much inferior. The consumption of the whole canton, for all purposes, is at least 20,000 hundred weight, of which 15,000 is drawn from Franche Comté.

A great number of mares, foals, and horned cattle, are annually raised in the canton: the oxen of three or four years old are sold in the canton of Bern, in the country of Neuchatel, and in Franche Comté. Upon an average it may be estimated that the canton of Friburg annually supplies pasture for 37,000 cows and oxen.

In our route from Friburg to Bern, we made a small circuit to the village of Neuneck, to an hermitage, that lies about a league from Friburg; and which has been highly extolled by travellers on account of its singularity. It is formed in the solid rock, and was the work of two men; as such, it is an astonishing performance, but, in any other respect, is scarcely worth visiting. In the last century a hermit scooped out a hollow in this rock, just sufficient to lie at full length: but his successor desiring a more commodious mansion, hewed, in the heart of the mountain, a chapel, several apartments, and stair-cases. The length of the whole is above four hundred feet; one room is ninety feet long, and twenty broad; the steeple of the chapel, if it may be so called, is eighty feet high, and the chimney of the kitchen ninety.

The hermit who perforated this habitation, was near thirty years engaged in the work. What a waste of time and industry! But such is the folly of sequestered superstition, that, for want of better occupations, it frequently has recourse to laborious trifles. The situation of the hermitage is extremely beautiful: the rock hangs over the river Sane, which meandering between two chains of hills covered with wood, fills all the valley beneath. The present hermit is a German; and with him lives an old soldier.

From this hermitage to Neuneck (where the canton of Bern commences) the country is rich and finely wooded; on our right we had a distant view of rugged rocks, the snowy alps rising above them and closing the prospect. The sun was now declining: the various tints of the evening, the purple gleam upon the naked rocks, and the rays of the setting-sun upon the glaciers, which seemed to glow almost into transparency, cast such a beautiful radiance over this magnificent scene, as even the luminous pencil of Apelles himself, who is said to have painted "*quæ pingi non possunt, fulgura & fulgura*," would in vain have attempted to imitate. I am, &c.

LETTER LV.—Town and Canton of Bern.

Bern, Sept. 16.

I WAS much struck, on entering into Bern, with its singular neatness and beauty. The principal streets are broad and long, not straight, but gently curved; the houses

* "Things which cannot be painted, thunder and lightning." Vid. Plin. H. N. lib. 35. c. 10.

are mostly uniform, built of a greyish stone upon arcades. Through the middle of the streets runs a lively stream of the clearest water, in a stone channel, while several fountains are not less ornamental to the place than beneficial to the inhabitants. The river Aar almost surrounds the town, winding its course over a rocky bed much below the level of the streets, and for a considerable way forming by its steep and craggy banks a kind of natural rampart. The cathedral, a noble pile of Gothic architecture, stands upon a platform raised from the bed of the river, and commands a most extensive view. The adjacent country is richly cultivated, and agreeably diversified with hills, lawns, wood, and water; the river flows rapidly below, and an abrupt chain of rugged and snow-capt alps bounds the distant horizon. Such an assembly of wild and beautiful objects would, in any place, present a most striking prospect; but the effect is greatly heightened when seen from the midst of a large town.

According to the native historians, Bern was built by Berchtold the Fifth, Duke of Zæringen, and was, from its foundation, an imperial city. Upon his death in 1218, the Emperor Frederic the Second conferred upon the inhabitants considerable privileges, and compiled a code, which forms the basis of their present civil law. The liberty which this city enjoyed attracted many persons from the adjacent country, who found a sure asylum from the oppression of the nobles. Although Bern from its foundation was engaged in perpetual wars with its neighbours, and for some time with the House of Austria; yet it continued to aggrandise itself by degrees, and considerably enlarged its territory. In the year 1353 Bern acceded to the Helvetic confederacy; and possessed such power, even at that early period, as to obtain the second rank among the Swiss cantons. Since the acquisition of the Pays de Vaud, the domains of this canton form nearly the third part of Switzerland, and about the fourth of the actual population; it contains about 370,000 souls, exclusive of 11,000 in the capital. At the introduction of the reformation in 1528, government acquired a large increase of revenue by secularizing the ecclesiastical possessions. At the same period the whole canton followed the example of the capital; and the reformed religion was permanently established.

The canton is divided into two great divisions, the Pays de Vaud and the German district. The Pays de Vaud having been conquered from the House of Savoy, and the German district from the states of the empire; justice is administered, and taxes regulated in each by peculiar laws and customs. Each of these divisions has its treasurer and chamber of appeal resident in the capital; the chamber of appeal belonging to the Pays de Vaud judges in the last resort, but the inhabitants of the German district may appeal to the sovereign council.

The society is extremely agreeable, and foreigners are received with great ease and politeness. The men do not meet in separate societies, and the women are the life and ornament of their daily assemblies, which begin about four or five in the afternoon, and continue till eight, when the parties usually retire to their respective houses. Dancing is a frequent amusement at Bern; there is a public ball every fortnight, and in winter scarcely an evening passes without one. These diversions commence at so early an hour as five in the afternoon, on account of a standing order of government, which prohibits their continuance after eleven. English country dances are usually introduced, but the *walse*, (which is a species of allemande,) the favourite dance of the natives, is most common; the parties arrange themselves in distinct couples, and follow each other in a circular direction, the gentleman turning his partner with great velocity. The life and spirit of their dances strike an Englishman with astonishment, and can scarcely be conceived by those who have never seen them. The gaiety of the parties is still more enlivened during the summer months, when the natives resort to a garden near the town, and

dance under an open pavilion amid scenes of rural festivity. The foreigner who prefers the constant intercourse of company to a more tranquil society, will choose the residence of Bern rather than that of any other town in Switzerland.

There is but little trade in the capital; some few manufactures indeed (chiefly of linen and silk) have been established, but are carried on by those only who have no prospect of being admitted into the sovereign council. For those families who enjoy any influence in public affairs would hold themselves degraded by engaging in commerce; and as offices of state, except bailiages, are in general not very profitable, nor indeed numerous, many enter, as their sole resource, into foreign armies. One general advantage, however, is derived from this anti-commercial spirit; the members of government not being interested in laying restrictions on trade, do not, as at Zurich and Basle, confine the exclusive right of establishing manufactures to the burghers of the capital; but wisely extend that permission to all their subjects without distinction. From this circumstance, in conjunction with the mildness and wisdom of government, arises that comfortable state, and even affluence, which peculiarly distinguishes the peasantry in the whole canton of Bern: to the natural result of these wise regulations may be reasonably imputed the attachment to government particularly observable in the German district.*

It is remarkable that the peasants, who have acquired opulence either by manufactures or agriculture, seldom quit their situation; they continue in the same habits which they contracted in the earlier period of life, and, however wealthy, never give their daughters in marriage but to persons of their own description.

The public buildings are constructed in a noble simplicity of style, and announce the riches and grandeur of the republic. The arsenal contains arms for sixty thousand men, and a considerable quantity of cannon, which are cast in the town. The granary, an excellent institution, similar to that of Zurich, always contains a large provision of corn, supplied in consequence of particular treaties by France and Holland.

* No subjects ever displayed more attachment to their government than the peasants of this canton; and many instances occur in the history of Bern, when they flocked in crowds to the capital, to offer their assistance in suppressing all attempts to make innovations in the constitution. This unvaried attachment to the former government is a sufficient eulogy of its mildness and equity, and affords a decisive answer to all the reproaches of tyrannical oligarchy, urged by a few disaffected persons, and exaggerated by the French.

The address of the fifty delegates chosen by the people to assist the supreme council in amending the constitution, bears the most honourable testimony to the wisdom and integrity of government:

"It was to satisfy your views, that, as soon as we had taken our places in the assembly of the government, alterations were proposed to us which appeared useful to the general good of the country, and suitable to circumstances. We have supported these propositions with firmness, as you entrusted to us the care of co-operating as we shall judge necessary for the safety of the country.

"If it be true, that our constitution was not exempt from abuses, which human weakness renders almost inseparable from governments, how many have already disappeared through the wisdom and prudence of the administration? Did we not possess, in the fullest extent, the security of persons and property, the two most precious advantages of civil society? Can the administration be accused of a single deviation from justice? Can the members of our government be reproached with the least inclination that could look like corruption? Could the treasures of the state be administered with a stricter responsibility, with greater economy? And if the fertility of a parched and rocky soil, if the prosperity of a loyal nation, that has preserved the ancient purity of its manners, be most certain proofs of the goodness of its government, is it not yourselves who render this glorious testimony to the supreme power? Woe be to you, if ever you can forget it!"

The heroic intrepidity of the peasants, who voluntarily sacrificed their lives in defence of the constitution, notwithstanding the irresolution of the government, plainly proves that these sentiments were indelibly impressed on the hearts of the people.

The progress of the fatal revolution in the canton of Bern, and dissolution of the government, are related in the introductory account of the conquest of Switzerland.

The charitable institutions are numerous, liberal, and well directed. The hospitals are in general large, clean, and airy; and, in the alms house for the reception of fifty poor citizens, is a curious establishment similar to one which I noticed at Basle. Distressed travellers are treated with a meal and a lodging, if at night, and receive sixpence on their departure; if sick or wounded, they are maintained till their recovery.

The house of correction which, when the benevolent Mr. Howard visited Bern, was in so deplorable a state, is now extremely well regulated, and reflects great honour on M. Manuel, member of the Great Council, to whose care and attention this salutary change is chiefly owing. Formerly all delinquents, without distinction, were confined together, but are now separated; two houses are established, one called the House of Correction for greater crimes, and the other the House of Labour for misdemeanors. The prisoners are also discriminated by the appellations of *brown* and *blue* from the colour of their clothes, with which they are supplied gratis during the term of their confinement; the brown colour is appropriated to the house of correction, the blue to the house of labour. The men and women are lodged in separate apartments. Both are constantly employed, sometimes in cleaning the streets, and other fervile occupations; at other times they are taught to read and write, and instructed in various trades, which may assist them in gaining a maintenance at the expiration of the time for which they were sentenced to hard labour. By these means the expence of the establishment is nearly supported, and an honest livelihood assured to those who would otherwise prove useless or pernicious members of society.

There are four tables, at which the respective seats are a mark of distinction appropriated to good behaviour; and a larger or lesser share of provision is distributed to each in proportion to their industry. After earning their food, the prisoners in the house of labour receive ten per cent., those in the house of correction eight per cent., for their extra work.

Public justice is wisely and impartially administered; and the torture, which had for some time fallen into disuse, is now formally abolished by a public act of government. This humane and just act forms a distinguished æra in the history of Swiss jurisprudence; as the example of so powerful and wise a government cannot fail of having a general influence; and it is to be hoped, will be the prelude to the abolition of torture throughout Switzerland.

The solemnity used in passing capital sentence on a criminal deserves to be mentioned and imitated. The trial being finished, the prisoner is informed of his condemnation by the *Grand Sautier*, or lieutenant of the police, and attended by two clergymen, who prepare him for death. On the day appointed for execution, a large scaffold, covered with a black canopy, is constructed in the middle of the principal street. The avoyer, with a sceptre in his hand, is seated on an elevated kind of throne between two senators, and attended by the chancellor and lieutenant of the police, holding an iron stick, called the *rod of blood*, all habited in their official robes. The criminal being brought to the foot of the scaffold without chains, the chancellor reads aloud the sentence of condemnation, at the conclusion of which the avoyer bids the executioner approach, who instantly binds the arms of the culprit, and leads him to the place of execution.

The public library is a small but well-chosen collection, containing 20,000 volumes, a cabinet of Swiss coins and medals, and many curious manuscripts, of which M. Sinner, a man of great erudition, has published a judicious catalogue. He has not only set forth their titles, and ascertained their age, but has also given a general and succinct account of their respective subjects, and from many has published extracts equally curious and interesting. Among these MSS. are some of the thirteenth century, consisting of se-

veral songs and romances of the Troubadours, written in that and the preceding ages, which merit the attention of those who are conversant in that species of ancient poetry.

Learning is neither so universally encouraged, nor so successfully cultivated here as at Zurich; the academical studies are principally directed to those branches of knowledge more essentially necessary for entering into the church. The society for promotion of agriculture is almost the only establishment directly tending to promote the arts and sciences, but meets with little countenance from government.

October 1786.

I FEEL a very sensible satisfaction on adding, that this enlightened government no longer merits the reproach of not sufficiently encouraging literature; it is now awakened from its former lethargy, and begins to perceive that it is the interest of every wise state to esteem and protect the sciences. The magistrates have lately purchased and appropriated a large mansion for the public library, increased the collection of books, and procured from England an extensive apparatus for experimental philosophy.

Among other undertakings, a new map of the canton is now preparing under their auspices, by the professor of experimental philosophy, a great *desideratum* in the geography of Switzerland, as the alps of the canton are incorrectly delineated in all the maps which have fallen under my observation. I am also happy to add, that the Rev. M. Wytttenbach has lately instituted a literary society for the promotion of physics and natural history in general, and that of Switzerland in particular. In January 1788, this society consisted of ten members resident at Bern, of whom several possess, and others are forming collections agreeable to the plan of the institution. The members have established regular correspondence in various parts of Europe, and readily answer the inquiries of foreign naturalists, relating to the natural history of this country. An institution founded on such liberal and extensive principles, and having one object principally in view, cannot fail to render the most essential service to science.

I am, &c.

LETTER LVI.—*Government of Bern.*

WERE I to attempt entering into a minute disquisition concerning the government of Bern, my letter would not only exceed its proper limits, but would hardly be contained within the extent of an ordinary pamphlet. I am persuaded, therefore, you will readily excuse me from putting your patience to so tedious a trial; but you will probably think me very inconsistent indeed, if after having already descended into less interesting details, I should pass over in silence a government, the wisdom of whose administration is so justly admired. Let me endeavour then to sketch the general outlines of this constitution.

The sovereign power resides in the Great Council of two hundred; which, when complete, consists of two hundred and ninety-nine members, chosen from the citizens; from whom they are considered as deriving their power, and as acting by deputation. The authority with which they are invested is, in some respects, the most uncontrolled of any among the aristocratical states of Switzerland. The government of Lucern is indeed called the most aristocratical of all the cantons; and it may be so perhaps with respect to the small number of families, to which the administration of affairs is entrusted; but no war can be declared, no peace concluded, no alliance made, no taxes imposed,

without the consent of the burghers in a general assembly. At Friburgh and Soleure the burghers are likewise convened upon particular occasions; whereas the Great Council of Bern (since 1682, when it was declared the sovereign,) is restrained by no constitutional check of this kind; as a general assembly of the citizens is never convened on any occasion.

The executive powers of government are delegated by this sovereign council to the senate, chosen by themselves from their own body; the former assemblies ordinarily three times a week, and extraordinarily upon particular occasions; the senate every day, Sundays excepted.

The Senate, comprising the two avoyers, or chiefs of the republics, is composed of twenty-seven members; and from this select body are drawn the principal magistrates. On a vacancy in the Senate, twenty-six balls, three of which are golden, are put into a box, and drawn by the several members; those who draw the three golden balls nominate three electors out of their body. In the same manner seven members are chosen from the Great Council, who also nominate seven electors out of their own body. These ten electors fix upon a certain number of candidates, not exceeding ten nor less than six; and those among these candidates who have the fewest votes in the Sovereign Council retire till their number is reduced to four; then four balls, two golden and two silver, are drawn by the four remaining candidates; the two who draw the former are put in nomination, and he who has the greatest number of suffrages in the Sovereign Council is chosen. But, to be eligible, the candidate must have been a member of the Great Council ten years, and must be married or a widower*.

The Great Council is generally filled up every ten years; as within that period there is usually a deficiency of eighty members to complete the whole number of two hundred and ninety-nine. A new election can only be proposed on a vacancy of eighty; and cannot be deferred when there is a deficiency of a hundred. The time of the election being determined by vote, each avoyer nominates two of the new members; each seizenier, and each member of the senate, one; two or three officers of state enjoy the same privilege. A few persons claim, by virtue of their offices, a right of being elected, and are generally admitted. These several nominations and pretensions commonly amount in the whole to about fifty; the remaining vacancies are supplied by the suffrages of the senate and the seizeniers†.

* Mr. Planta justly observes, that, although I have justly described this mode of balloting with sufficient accuracy, yet I have not pointed out the true objects, which he thus describes:

"The reason of this repeated alternation by lot and ballot cannot but be obvious to those who will bestow some thought upon the subject. Its greatest excellence perhaps consisted in making the chance of lots apply chiefly to the electors, and not to those who might pretend to the succession; by which means the dangerous effects of cabal were in a great measure obviated; and yet a fair prospect of success was given to the meritorious, while those wholly unqualified could entertain little hope of being preferred. The selected candidates drew lots only in one stage of the proceeding, and this when their number, being reduced to only four, an even chance was given to those few to whom eminent qualifications had secured the marked approbation of their fellow-citizens; and when fortune proved unfavourable in one instance, repeated opportunities would occur in which, unless she proved singularly unpropitious, the desired object would ultimately be obtained. This mode will admit of much meditation, and may perhaps afford some hints for imitation. It has here been explained somewhat at large, as no similar institution occurs in any republic, either ancient or modern." *Planta's History of the Helvetic Confederacy*, vol. ii. p. 261.

† This measure of deferring the election till the number of vacancies amounted to eighty, though not dangerous in times of tranquillity, was extremely impolitic in a period of innovation. It greatly contributed to disorganise the government, at the commencement of the late revolution, as the admission of so many new members, who were mostly infected with French principles, proved the source of that fluctuation which distinguished the councils of this government, and precipitated its downfall.

The *Seizeniers* are sixteen members of the Great Council, drawn yearly from the abbayes or tribes; two from each of the four great tribes, and one from each of the remaining eight; the candidates are generally* taken from those who have exercised the office of bailifs; and are elected by lot. Every year during three days at Easter, all other employments in the state are suspended, except those of the bannerets and the feizeners, who are invested with an authority similar to that of the Roman censors. In case of mal-administration, they may remove any member from the Great Council, or Senate; but it is a power which they never exercise; and should they think proper to exert it, the sentence must be confirmed by the council.

The principal magistrates are, two avoyers, two treasurers, and four bannerets; each chosen by a majority of voices in the Sovereign Council, and yearly confirmed in their respective offices. The avoyers hold their post for life; the treasurers, six years; and the bannerets, four. At Easter the avoyer in office delivers up his authority, in full council, to his colleague. The *reigning* avoyer sits on an elevated seat, under a canopy, and the seal of the republic lies upon the table before him. He never delivers his opinion except it is demanded; he enjoys no vote unless the numbers are equal, and in that case he has the casting voice. The ex-avoyer is the first senator in rank; and president of the secret council.

The two treasurers, one for the German district, and the other for the Pays de Vaud, form, in conjunction with the four bannerets, an economical chamber, or council of finance†; which passes the accounts of the bailifs, and receives the revenues from those who are accountable to government. The four bannerets, together with the ex-avoyer, the senior treasurer, and two members of the senate, compose a committee or secret council, in which all state affairs, requiring secrecy, are discussed.

* I say generally, because it is not absolutely fixed, that all the feizeniers must have been bailifs; for if it happens, that in one tribe there are two persons one of whom has been a bailif, and the other is a member of the Great Council, they draw lots for the charge. And should a member of the Great Council be the only one of his tribe, he becomes feizenier of course, provided he is eligible. In order to be feizenier, the candidate must be married, or a widower, and have neither his father or brother in the Senate.

† The finances were regulated with the strictest economy, and yet the expenditure was answerable to the dignity of the republic.

The salaries of the principal magistrates were extremely moderate:

Reigning avoyer	£ 400
Senators, each	150
Bannerets	230

The revenues were derived principally from the public demesnes, which were appropriated at the time of the Reformation, the tithes sequestered at the same period, and assigned to the maintenance of the clergy, public seminaries, and charitable institutions; quit-rents, and monopoly of salt, and gunpowder; produce of the post-office, customs and tolls, duty on wine imported into the capital, and fines imposed for misdemeanors; also a tax on the alienation of landed property in the French district; the interest of money accumulated from a regular progression of savings, of which near £500,000 were lodged in the English funds.

The whole revenue has been stated, by the best authorities, as not exceeding 300,000 crowns, which were always more than sufficient to supply the expenditure, and to construct and support the magnificent public works. A large treasure was always reserved in a vault of the capital for the supply of sudden emergencies, and the care of this vault entrusted to the principal magistrates, who had each a separate key, and without their concurrence, and a special order from the Sovereign Council, the door could not be opened.

The amount of this treasure could not be accurately ascertained, but it must have been very considerable as not less than £160,000 sterling was deposited in the mountains of Hâlli and Oberland. The pillage of this treasure was one of the principal objects of the French Directory, to defray the expences of their armament against Egypt. In the plunder of Bern, the French did not acquire less than £400,000 in specie.

I have only described these eight magistracies, as being the chief offices of the state and exercised by members of the Senate. But although the form of this constitution is aristocratical, and the Senate possesses a very considerable influence, yet it does not enjoy that almost exclusive authority, which is observable in many aristocratical governments. For, by several wise and well-observed regulations, the Sovereign Council, although it delegates the most important concerns of government to the Senate, yet assembles at stated times, and superintends the administration of public affairs.

It may also be remarked, that although the ancient houses retain very considerable influence, and are more readily entrusted with the administration of affairs; yet the principal charges are not exclusively confined to them; many new families being admitted into the Sovereign Council on every election. It must nevertheless be acknowledged, that, as the citizens are continually diminishing, and the vacancies never supplied; it would well become so wise a government to receive occasionally new families into the burghership, in order to prevent the ill effects arising from the partial and narrow spirit of too confined an oligarchy*. Government is administered throughout its several departments with great precision, and every ordinance executed with as much dispatch as in a monarchical state. The administration is conducted with great wisdom and moderation, and the rulers are particularly cautious not to encroach upon the privileges of the subject.

The canton is divided into a certain number of districts, called bailliages, over which bailiffs are chosen from the Sovereign Council; and these posts being the most profitable in the disposal of government, are the great objects of general pursuit. Formerly the bailiffs, taken indifferently from the Senate or Great Council, were nominated by the bannerets; but as this method rendered the members entirely dependent upon those who had the chief credit and influence in the commonwealth, the mode of election was altered in 1712, and they are now chosen by lot. No competitor, however, can be received as a candidate, in opposition to a more ancient member of the Great Council: for instance he who was admitted in 1766, cannot stand against one chosen in 1756. None but married men or widowers are eligible; nor can any person occupy more than once the principal bailliages; those of a less profitable kind may be possessed three times.

The bailiffs are representatives of the sovereign power in their respective districts; they enforce the edicts of government, collect the public revenues, act as justices of the peace, and are judges in civil and criminal causes, except where there is any local † jurisdiction. In civil causes, beyond a certain value, an appeal lies to the courts of Bern: in criminal affairs, the process undergoes a revision in the Senate, and is referred to the criminal chamber, which inflicts punishment for small misdemeanors; in capital cases, the sentence must be confirmed by the Senate, and by the Sovereign Council, if the delinquent is a citizen of Bern. The bailiff delivers his accounts to the economical chamber, to which court an appeal lies, in case of exaction on the part of the bailiff, or of his officers; and with respect to misdemeanors punishable by fine, of which the bailiff is entitled to a share, the proportion of the penalty is not left to the arbitrary decision of an interested judge, but settled by the legislature with the most scrupulous exactness.

* Since the publication of this work, the government admitted some new burghers both from the Pays de Vaud, and from the German district. Among these was M. Cerjeat of Lausanne. But the number was too small to produce any material effect; and the admission was clogged with so many restrictions, that no advantage could be derived before the third generation.

† The lord of the estate of Diesbach enjoys, within his own lands, the same powers in criminal affairs, as are possessed by the bailiffs in their respective districts.

Although

Although, from all these considerations, it should seem, that every possible precaution has been taken by government to prevent the extortions of the bailiffs; yet instances have not been wanting to prove, that these wise and strict regulations, may be eluded; these instances are very few, but several examples occur in which extortions have been severely punished, and the government has even shewn great readiness to listen to all appeals, and to afford speedy redress.

The profits of the bailiff's office arise from the produce of the demesnes, of the tythes, certain duties paid to government in the respective bailliages, and from the fines imposed for criminal offences. In some part of the German division, the bailiff is entitled, upon the death of every peasant, to a determinate part of the inheritance; although his share is very inconsiderable, yet in some situations it may prove an oppressive tax upon the family. This tax is the only instance that has fallen under my knowledge, where the peasants of this canton are liable to any imposition, which can justly be deemed grievous.

Although there are no standing armies in Switzerland; yet in many of the cantons, and particularly in Bern, the militia is so well regulated, that government can assemble a very considerable body of men at a moment's warning. To this end every male at the age of sixteen is inrolled, and about a third of the whole number are formed into particular regiments, composed of fusileers and electionaries; the former consisting of batchelors and the latter of married men. Every person thus enrolled, is obliged to provide himself, at his own expence, with an uniform, a musket, and a certain quantity of powder and ball; and no peasant is allowed to marry, unless he produces his uniform and arms. Every year a certain number of officers, who are called Land Majors, are deputed by the council of war, to inspect the arms, to complete the regiments, and exercise the militia. Beside this annual review, the regiments are occasionally exercised by veteran soldiers, appointed for that purpose.

Beside the arms in the arsenal of Bern, a certain quantity is also provided, in the arsenal of each bailliage, sufficient for the militia of that district; and likewise a sum of money amounting to three months' pay, which is appropriated to the electionaries in case of actual service. The dragoons are chosen from the substantial farmers; as each person is obliged to provide his horse and accoutrements. In time of peace, the avoyer out of office is president of the council of war, and a member of that council is commander of the militia in the Pays de Vaud; but during war a general in chief is nominated for the forces of the republic. A certain number of regiments being thus always in readiness, signals are fixed on the highest part of each bailliage, for assembling the militia at a particular place in each district, where they receive orders for marching.

Before I close this letter, I shall just mention an institution called the *Exterior State*, as remarkable for its singularity as utility. It is a model of the Sovereign Council, and is composed of those burghers, who have not attained the age requisite for entering into that Council. It has a Great Council, a Senate, two avoyers, treasurers, bannerets, and seizeniers; all of whom are chosen in the usual manner, and with the accustomed ceremonies. The post of avoyer in this mimic community is solicited with great assiduity, and sometimes obtained a considerable expence; as the successful candidate is always admitted into the Great Council, without any farther recommendation. This body possesses a certain number of bailliages, which consist of several ruined castles dispersed over the canton; it has also its common treasure, and its debts. In this last article, however, it by no means resembles the actual government of Bern, which is not only free from debts, but possessed of a very considerable fund in reserve*.

* The badge or coat of arms borne by this mimic commonwealth, is an ape sitting on a lobster, and viewing himself in a mirror.

This remarkable institution, may be considered as a political seminary for the youth of Bern. It renders them acquainted with the forms of the constitution; and, as the members debate upon all kinds of political subjects, affords them an opportunity of exercising and improving their talents, and by that means of becoming more capable of serving the public, whenever they may be admitted to a share in the administration.

I am, &c.

LETTER LVII.—*Biographical and Literary Anecdotes of Haller.*

BERN has produced few men highly eminent in literature; but has established her glory in being the birth-place of the celebrated Haller.

Albert Haller*, the youngest of five brothers, was born on the 16th of October 1708. His father, Emanuel Haller, a citizen of Bern, practised the law as an advocate with great success; and in 1713 removed from the capital to Badén, where he was appointed secretary of that bailliage.

Although many accounts are usually related concerning the early genius of distinguished persons, which do not always deserve implicit credit; yet the premature abilities and application of Haller are incontestably proved. When he had scarcely attained his fifth year he was accustomed to write the new words, which he recollected to have heard in the course of the day. His progress in the languages was so rapid, that in his tenth year he could translate from the Greek, and composed for his private use a Chaldaic grammar, a Greek and Hebrew lexicon. His passion for letters was also so general and ardent, that, about the same period, he abridged from Bayle and Moreri an historical dictionary, comprising above two thousand lives, and distinguished himself by a satire in Latin verse against his preceptor Abraham Baillod, a person of considerable learning, but of a capricious and morose disposition.

Such unwearied application, and astonishing progress in a youth, ought to have ensured the approbation and encouragement of his family. On the contrary, his father, who had destined him to the law, reproved his growing taste for polite literature, was particularly offended at his inclination for poetry, as likely to draw him from the severer occupations, and objected to the variety of his pursuits as too desultory and superficial.

* The materials for this biographical sketch, are chiefly collected from the following lives of this great man, which, I was informed by his eldest son, since deceased, are those to which most credit may be given. 1. *Leben des Herrn von Haller*, by George Zimmerman. Zurich, 1755. The author was the disciple and friend of Haller. 2. *Lobrede auf Herrn Albrecht von Haller, von Herrn von Balthasar*. Basel, 1778. The author was Haller's intimate friend, and was well acquainted with the principal events of his life. He is the same gentleman whom I have mentioned in vol. i. Letter 23. 3. *Lobrede auf Herrn Albert Haller*. Durch, V. B. *Tscharnier des Grossen Raths, &c.* Bern, 1778. M. Tscharnier, being a native of Bern, and an intimate acquaintance of Haller, his account deserves implicit credit. He was author of several esteemed works on the topography and history of Switzerland. He died in 1778, a short time after he had pronounced this panegyric on his deceased friend. 4. *Eloge Historique d'Albert de Haller, avec un Catalogue de ses Oeuvres*. Geneva, 1778. Senneblé, the writer of this eulogium, is well known as the learned author of *Bibliothèque de Geneve*, and of *Histoire Littéraire de Geneve*. He informs us, that he received several anecdotes from the family of Haller.

Many other panegyrics and lives of Haller have been published in various parts of Europe; but as they were mostly written by those who were not personally acquainted with him, I have not cited them as authorities. His son mentions nineteen lives and panegyrics of his father, that had fallen under his notice in 1784. See Bibl. Schweit. Gesch. vol. ii. No. 882—906. I have been enabled to add several anecdotes which I procured at Bern, and from his eldest son the late bailiff of Nyon.

The completest list of Haller's works is to be found in the 6th volume of "*Epistola ad Hallerum scripta*." Bern, 1775. His subsequent publications may be supplied from Senneblé's catalogue.

He did not consider, that, during childhood, the principal object of education is to infuse a taste for application in general; and, that when the base is rendered as broad as possible, it may always, like a pyramid, be reduced to a point. But neither his father's repeated exhortations, nor his preceptor's severe admonitions, could confine his studies to one object, or check his insatiable thirst for general information.

In this manner he was educated until 1721, when, on his father's death, he was removed to the public school at Bern. He was placed in a class far above his age; and usually wrote in Greek the exercise which he was expected to compose in the Latin tongue. In 1723 he obtained permission to accompany a young friend to Bienne, in order to be instructed in philosophy by the father of his companion, who was a celebrated physician. But his new preceptor being a bigot to the Cartesian school, Haller soon rejected with disdain that logic and philosophy, which tended to cramp his genius rather than extend his knowledge, and continued to cultivate history, poetry, and polite literature, but with as little order and method as might be expected from his years.

Haller, during his residence at Bienne, began a custom which he afterwards followed through life, that of writing his opinion of the books which he perused, and making large extracts from them. His genius being also awakened by the romantic scenery of the country to poetical enthusiasm, he composed various pieces in the epic, dramatic, and lyric styles. He was at this time so entirely absorbed in this favourite study, that, a fire breaking out in the house in which he resided, he rushed into his apartment, and rescued his poetry, leaving his other papers, with little regret, to the flames. When a more mature age had ripened his judgement, he was frequently heard to say, that he had preserved from the flames those compositions which he then thought the finest productions of human genius, in order at a future period to consign them to destruction as unworthy of his pen*.

In this period of life, Haller compares himself to a wild plant, which is left to grow without pruning: yet this very circumstance was probably the principal cause of his future proficiency, and the foundation of that universal knowledge, which he afterwards acquired.

He was originally intended for the law; but his active mind could not submit to follow a profession which would limit his inquiries; which entirely depended on precedent and authority; and which, to use his own quotation from Horace, in a letter to his friend Bonnet, obliged him,

Jurare in verba magistri.

And although he could not submit to the shackles of that narrow philosophy, so strongly recommended and enforced by his new preceptor, yet he appears to have been principally determined by his advice to dedicate himself to physic; the study of which comprehends such a variety of literary pursuits as seemed congenial to the zeal and activity

* Many of his biographers have confounded these two facts; and, from a natural proneness to exaggeration, have asserted, that at Bienne, Haller, with a greatness of mind above his years, burned his poetical compositions, from a strong conviction that poetry tended to alienate his mind from the severer studies: whereas, the very contrary happened. He saved his poetical pieces in preference to his other papers, and burned them afterwards, because they would have disgraced his reputation; although as juvenile productions, they were not wholly without merit. I have in this instance preferred the authority of his particular friends, Balthasar and Tschärner, to his other biographers, who had not such opportunities of obtaining the truth. Besides, as a confirmation of their evidence, Haller did not intermit his poetical studies; and wrote at Tübingen his *Morgen-gedanken* and *Sehn-Sucht*, which are the earliest specimens he ever gave to the public.

of his capacious mind. He no sooner formed this resolution, than he adopted a more regular and uniform plan, than he had hitherto been able to pursue: he removed towards the end of 1723, to the university of Tübingen, where he prosecuted his studies, under the professors Camerarius and Du Vernoy, with that unwearied application which never forsook him. From Camerarius he learned those sound principles of rational philosophy, which teach us first to doubt, and afterwards to believe, and which are equally removed from credulity and scepticism. From the lectures of Du Vernoy he imbibed his first taste for botany, and made so rapid a progress in the study of anatomy, that his master from several dissertations predicted his future proficiency. Notwithstanding his strong and invariable attachment to these two branches of natural history, he represents himself as studying, *invita minerva*, against nature; anatomy though he could not support offensive smells, and botany though he was extremely short-sighted. At Tübingen he also distinguished his knowledge in mineralogy by refuting the error of Tournefort, in ascribing to fossils a vegetating power.

During his continuance in that university, he gave an instance of controul over his passions; a difficult conquest for a young man of strong feelings and lively imagination. A single deviation into excess, into which he was hurried by the example of some of his fellow-pupils, so greatly affected a person like him, no less enamoured of virtue, than susceptible of ingenuous shame, that he instantly formed a resolution to abstain from wine, and adopted a strictness of morals, which renders highly probable the assertion of Condorcet, his French encomiast, that he was descended from a family in which piety might be said to be hereditary.

In 1725, Haller repaired to Leyden, to which place he was drawn by the great reputation of Boerhaave. Here he found a more ample field for the improvement of his mind, and the display of his abilities. He became the favourite scholar of Boerhaave, by whose example and encouragement he strengthened his growing inclination for botany. He noted down his master's lectures on the *Institutes of Medicine* with such precision, as afterwards gave birth to one of his most useful publications. He continued his anatomical studies under Albinus, then rising into fame, and the venerable Ruysch, who so highly improved the art of injecting anatomical preparations. The precarious state of his health, probably occasioned or at least increased by his intense application, induced him to accompany two of his countrymen through part of Germany. On his return in 1726, he received his doctor's degree, though only in the nineteenth year of his age, and published on that occasion his inaugural dissertation *de Ductu salivari Cofchviziensi*.

In 1727 he visited England, was favourably received by Cheselden, Douglas, and Sir Hans Sloane; and improved his knowledge of medicine and surgery under the auspices of those celebrated men. At Paris, whither he next directed his course, he studied botany under Geoffroy and Jussieu; anatomy under Le Dran and Winslow, a celebrated surgeon. Winslow was indeed his favourite master, whom he proposed to his disciples as the best model for their imitation, as an anatomist, who, shackled by no system, described simply and faithfully what he himself observed in his dissections.

Haller proposed to continue his travels to Italy, that country where medicinal knowledge first revived in the darker ages, and where,

“ Smit with the love of sacred song,”

he might indulge his enthusiasm and improve his taste in classical literature; but the uncertain state of his health, the *maladie du pays* which so remarkably affects the Swiss in foreign parts, and on which he has composed a poem, together with the advice

of his friends, prevailed over his inclination, and induced him to return to his native city.

In his way to Bern he stopped at Basle, in order to study mathematics under the celebrated John Bernoulli; and in this, as well as in every other instance of his life, applied with such indefatigable perseverance, as if that science was the sole object of his future researches. His proficiency in these studies is sufficiently proved by several treatises still extant in manuscript on arithmetic and geometry, and particularly by his remarks on the Marquis de l'Hospital's Analysis of Infinitesimals, and his attachment to them by his being deeply employed in a profound calculation on the day of his marriage.

But though he made such a progress as astonished Bernoulli himself, he continued his other pursuits, being appointed to read lectures on anatomy during the sickness of the professor. While he fulfilled the duties of that office, he also attended the lectures of Tzinger on the practical parts of Medicine; thus at the same time displaying, with equal propriety, the dignity of a professor, and the humility of a pupil.

During the summer of 1729, he accompanied his friend John Gesner into the mountains of Switzerland; an excursion rendered memorable by its suggesting to him the plan of a *Flora Helvetica*, and by inspiring his poem on the Alps, which he composed in the twenty-first year of his age; a poem as sublime and immortal as the mountains which are the subject of his song.

Not long after his poem on the Alps, he wrote his ethic epistles, on the Imperfection of Human Virtue, on Superstition and Infidelity, on the Origin of Evil, on the Vanity of Honour, Various Satires, Doris, a Pastoral on his first wife, and his much admired Elegy on her death. It is a convincing proof of Haller's versatile genius and mental powers, that he so eminently excelled in poetry, which, except in his early youth, he never considered otherwise than as an amusement, either to soothe him under afflictions, and in the bed of sickness, or to console him for the envy and neglect of his contemporaries.

The soundest German critics place Haller among the most eminent of their poets; and consider sublimity as the grand characteristic of his writings. They acknowledge, that he improved the harmony and richness of his native tongue; that he possessed the highest powers of invention, and great originality both in his ideas and language; that he is the true colourist of nature; that he founded the depths of metaphysical and moral science; that he equally excelled in picturesque descriptions, in soft and delightful imagery, in elevated sentiments, and philosophical precision. A few supercilious critics have reproached his poetry with occasional obscurities; and accuse him of introducing a new language affectedly differing from the common modes of diction. Cold criticism may censure; but twenty-two successive editions of his German poems, and the translation of them into the principal languages of Europe, prove, that they possess the great aim of poetry, that of pleasing and interesting the reader. And it may be remarked with truth, that although Haller's stupendous labours in erudition and science render his poetical talents of inferior account; yet had he confined himself to the muses, poetry alone would have immortalized his name.

It is time to accompany Haller to his native city, where he returned, in 1729, expecting from his countrymen the same respect and patronage, he had so liberally received abroad. But he had the mortification to experience that neglect and envy to which every man of genius is exposed in his own country, and which he seems to have augmented by his satirical compositions.

He continued three years without having the interest to procure any public employment; though he prevailed on government to establish an anatomical theatre, and gave lectures

lectures gratis; yet he did not succeed in obtaining the place of physician to the hospital, which he much desired. He also solicited a professorship, and was repulsed. He too sensibly felt these disappointments, and expressed his impatience and indignation in his satirical poems, while he redoubled his application and services in order to force himself into public notice.

The first distinguished tribute to his literary talents was paid by the Royal Society of Upsala, which, in 1735, chose him a member. This election was the prelude to more honourable and beneficial employments; in the same year his countrymen at length acknowledged his merit, by appointing him director of an hospital and public librarian. As director, he distinguished himself by his zeal and humanity; as librarian he bestowed great pains in arranging the books, and in forming the first catalogue. Scarcely any branch of literature, however remote from his usual occupations, was omitted by Haller, whenever an opportunity presented itself, either of improving his general knowledge, or of being useful to science. Finding in the public library a collection of antient medals, which had been hitherto neglected, he took considerable pleasure in classing them. His love of history induced him to pay great attention to the study of medals, which he justly considered as the most authentic documents of historical truth, and the most certain monuments to ascertain the ever-fluctuating state of language.

His literary reputation began now to spread by various botanical, anatomical and medical publications, and by a collection of poems *, which first made its appearance in 1732.

At length, in 1736, he received, unsolicited, the offer of the professorship of physic, botany, and surgery, in the university of Gottingen, newly established by George the Second. Notwithstanding all the advantages and honours which accompanied this offer, he, for some time, hesitated whether he should accept it. He had, in 1731, espoused a young lady of good family, whose great beauty and accomplishments were rendered still more endearing by her affectionate subservience to his manner of life. She had brought him three children, and these ties attached him more strongly to his native place where his merits procured him many sincere friends, and the air of which he considered as in some respect necessary for the preservation of his health. On the other hand, the honour of being invited by so great a monarch, the dignity of the establishment to which he was called, and the consideration of having a more ample theatre for the improvement of his knowledge, induced him to remove to Gottingen.

He quitted Bern with much regret; presaging the heavy stroke which overtook him soon after his arrival in that university; he lost his wife. The death of his beloved Marianne, whose memory he has celebrated in a pathetic elegy, afflicted him so deeply, that it almost brought him to the grave. In this crisis of despondency he redoubled his application, as the most probable means of subduing his sorrow, and the duties of his station forced him from the contemplation of his own grief into public life.

During seventeen years, in which he resided at Gottingen, where his abilities expanded in proportion as his opportunities of acquiring knowledge increased; he obtained from government the establishment of a botanical garden, which he superintended; of an anatomical theatre, a school for midwifery, and a college for the improvement of surgery. He formed the plan for a Royal Society of Sciences, of which he was appointed perpetual president.

The comprehensive mind and versatile genius of Haller, united with his unremitting diligence and ardour in all his pursuits, enabled him to cultivate with uncommon success a variety of knowledge. Had not the great Swede pre-occupied the field, Haller

* *Versuch Schweitzerischer Gedichte.* The best edition is printed at Bern, 1775.

would have stood the first among his contemporaries as an improver of botany *. Yet botany was not among his earliest pursuits: for he informs us, that he had made no advances in it until his return from his travels; during his residence at Basle, in the year 1728, as if inspired, he says, by the genius of that place, which had nurtured the Bauhins, and where at that period botany was successfully cultivated by Staehlin, he laid the design of his future Flora. From this time he made annual journeys into various parts of Switzerland, and principally among the Alps. He cultivated the correspondence of the most eminent botanists, particularly with Scheutzer, Ludwig, Linnæus, Van Royen, and Dr. John Gefner of Zurich, who also meditated a design to publish a Swiss Flora, and freely communicated his materials to Haller.

His establishment at Gottingen enlarged his views and opportunities; and at length, in 1742, his great botanical work on the plants of Switzerland, the result of fourteen years study, made its appearance. It was entitled, *Enumeratio Methodica Stirpium Helvetiæ*, in two volumes, folio, and was the most copious Flora ever published, comprising 1840 species. The preface contains a compendious description of Switzerland, particularly the Alps; an account of the authors who had written on the Swiss plants; the recital of his own journeys; acknowledgments to those who had assisted him; concluding with the order and method which he pursued.

After the preface follows a chronological account of 268 volumes, cited in the work, each accompanied by a general character; in which, with great candour and impartiality, he points out the merit or demerit of the author, in the manner which he afterwards pursued in the *Methodus Studii Medici*, and in the *Bibliotheca Medicinæ*. This is a very useful and entertaining part of his work, as it forms almost a history of the progress of the science from the time of Brunfelsius to his own. He next delineates his own system of botany, according to which the plants are disposed. Throughout this great work Haller is entirely an original, not satisfying himself with giving the descriptions of former writers, he appears every where to have described the plant himself, and to have formed new genera, and commonly new specific characters for the whole, accommodated to his own system. He acquaints us, that it was his custom to write down the natural characters of each plant on the day he discovered it.

In treating on each species he has not only added a most copious number of synonymes, but appears to have consulted all the old authors, extracted their synonymes with uncommon diligence and singular discrimination, and arranged them, as much as possible, in chronological order; a method highly worthy of imitation, as it exhibits, at one view, a brief history of the plant, by pointing out the first discoverer, and the regions of its growth. This, to the curious botanist, is a very meritorious part of Haller's labour. To each plant is subjoined a summary account, from the best writers, of the qualities and uses, both economical and medical. The work is embellished with plates of some rare species, remarkable for their exactness and delicacy.

Having, in 1741, obtained from the King of Great Britain the establishment of the physic garden at Gottingen, Haller published the following year a catalogue of its plants; this was but a small volume, but the list served to shew the diligence with which he fulfilled the intention of the royal founder. In 1753 he much enlarged it, and comprehended the plants spontaneously growing in the environs, especially those of the Black Forest. He informs us, that this volume was the production of a three months' vacation, and laments, that the importance of his other employments prevented him.

* I should not have presumed to give any detailed account of Haller's botanical, medical, or anatomical works, had I not received assistance on these subjects from my very judicious friend Dr. Pultney.

from fulfilling his intention of describing the plants of Germany at large. This little work is curious, since it exemplifies his system as extended to exotics, of which the new and rare kinds are described ; but the small size of the volume precluded the introduction of the generical characters.

In 1745, he gratified the botanists by a new edition of the *Flora Jenensis* of Ruppius, and, that he might do justice to the work, he took a journey to Jena, where he gained access to the papers and *hortus siccus* of the author. He prefixed to this book anecdotes of this extraordinary man, and, by reforming and augmenting the whole from his own discoveries, he in some measure made it a *Flora Germanica*. These performances were by no means the termination of his botanical labours. On his return to Switzerland he continued his discoveries in this branch of natural history ; he also sent, at his own expence, persons properly qualified into the less frequented parts of the Alps.

The result appeared in a new edition of the *Enumeratio*, which was so much improved, that he considers it as a new work. It was published in three volumes, folio, in 1768, under the title of *Historia Stirpium indigenarum Helvetiæ, inchoata*. The subject is arranged in his own method, with the alteration of inverting the order of the classes, beginning with the *Compositæ*, or the *Syngenesia* class of Linæus, and ending with the *Cryptogamia*, which stood first in the *Enumeratio* ; both of which are objectionable, as subjecting the student to the most difficult parts of the system at his entrance on the study. Several interesting particulars of the former publication are also omitted in these volumes, of which curious botanists will much regret the loss ; for, though he has inserted, with enlargement, the physical geography of Switzerland, together with the account of those authors who had previously investigated the plants of the country, and has recited his own excursions for that purpose ; yet he has not introduced the critical catalogue of the authors, satisfying himself with giving a bare list of all the botanical writings, from the time of Theophrastus to 1768. It is still more to be regretted, that Haller has suppressed in this edition a great number of synonymes under each plant, inserting only a few of later date ; for although, in all possible instances he has introduced the synonymes of Linæus, yet he has, unfortunately for such as use the works of both, omitted the trivial names ; a circumstance which renders his book much less useful to those who are conversant in the sexual system. Yet these defects are doubtless more than compensated, by the innumerable improvements made in the descriptions, both of the genera and species, by the great addition to the number of plants, which are extended from 1840 to 2486, of which more than 800 are of the *Cryptogamia* class ; Haller having, after Micheli, beyond any of his contemporaries, enlarged the order of *Fungi*, of which, he tells us, he had paintings of more than 400 species made under his own inspection. It is not, however, surprising that Switzerland should produce a greater variety of vegetables than the middle parts of Europe ; when we reflect that the alpine situations afford growth to the plants of the arctic regions, and the warm vallies, to many of those common to southern. The value of this edition is much enhanced by enlarging the observations on the uses of plants ; and by referring to his authorities for what is not his own, with his accustomed accuracy. As an accession to this work, it may be added, that the author has in the notes, under each genus, introduced the plants of Theophrastus and Dioscorides, in as many instances as they admit of being ascertained.

Few botanists have laboured more than Haller, and yet his discoveries in botany occupied only a comparatively small portion of his time. To such as feel not, in the fullest extent, that enthusiasm which the love of science inspires, it may appear a paradox to assert that the dissection of human bodies could be a pleasurable employment ; yet Hal-
ler,

ler, in 1742, pronounced a spirited eulogium, in the university of Gottingen, on the subject, and his zeal in the pursuit of anatomical discoveries was attended with uncommon success. He seems early to have apprehended, that the knowledge of the distribution of the arterial system had not kept pace with that of the bones, muscles, nerves, and viscera, which had been separately and ably treated by men of eminence. Haller, therefore, wished to illustrate more perfectly this part of the human frame, and gave to the world a more complete system on the subject than had yet appeared. He published the first part of this great work in 1743, and the last in 1756. His tracts on other parts of anatomy, when collected in 1768, formed three volumes in quarto. The curious reader may see an enumeration of his many discoveries in anatomy and physiology, at the head of the sixth volume of his *Physiology*: although some of these discoveries may have been contested by his contemporaries, yet his unalienable right to most of them, and the light particularly which he threw upon incubation, ossification, irritability, and several other parts of the animal economy, will unquestionably secure to him a large and honourable share of fame with posterity.

Haller's emoluments augmented as his merits were displayed; and honours flowed upon him from all quarters. He was elected in 1748 into the Royal Society of Stockholm, into that of London in 1749, and in 1754 chosen one of the eight foreign members in the Academy of Sciences at Paris. In 1739 he was appointed physician to George the Second, and king's counsellor in 1740. In 1749 the Emperor Francis conferred on him letters of nobility at the request of George the Second, and about the same time the King, in a visit which he paid to the university, distinguished Haller with particular marks of approbation; an honour which the author gratefully acknowledges in an English publication, entitled, "*A short Narrative of the King's Journey to Gottingen*," and in the dedication to George the Second, prefixed to his edition of Boerhaave's *Methodus Studii Medici*.

He declined, in 1745, an invitation to Oxford, which would probably have terminated in his nomination to the professorship of botany, vacant by the death of the celebrated Dillenius; a second from the university of Utrecht, and, in 1750, a third from the King of Prussia, with the offer of a very considerable pension.

But of all his promotions none gave him more real satisfaction than his election into the Great Council of Bern, as it insured to him a retreat with dignity, and probably with emolument, in his native city, to which he looked forward with affection and attachment.

At length, in 1753, induced by the precarious state of his health, by the desire of removing from Gottingen, which he called the *grave* of his wives, and by his earnest anxiety to dedicate the remainder of his days to the service of his country, he took a journey to Bern, in order to procure an establishment, which, though not adequate to his present appointments, might place him in the bosom of his beloved Switzerland. Soon after his arrival, he fortunately obtained by lot the office of Amman. Although this office was of small emolument, yet, as it might be considered a prelude to future appointments, and gave him an immediate opportunity of serving his children, he resigned his professorship at Gottingen, and settled at Bern. Such was the general joy of his countrymen on this event, that Morikof struck a medal to commemorate his return.

Having formed this resolution, he could not be shaken by the most splendid offers. He declined, in 1755, the pressing invitation of Frederic the Second, to superintend the academies of Prussia, and to accept the chancellorship of the university of Hall, vacant by the death of Wolff. In 1767, he rejected the offer of a very advantageous and honourable

nourable settlement at St. Petersburg, made by Catharine the Second, and, in 1770, the still more dignified promotion to the chancellorship of the university of Gottingen, with a very considerable appointment; although George the Third wrote not only to Haller but to the Senate of Bern, requesting their influence to prevail on him to accept it.

His grateful country rewarded this disinterested attachment with the most liberal and unbounded confidence, and employed his talents in the public service. In 1757, he was sent to reform the academy of Lausanne, and in the following year was deputed by the Senate to examine some curious remains of antiquity discovered at Culm. About the same time he was appointed director of the salt-works at Bex and Aigle, with an annual salary of £500. During the term of this appointment, which continued six years, he resided at La Roche. In this retirement, he employed himself in superintending and improving the salt-works, of which he has given a short account; in making occasional excursions into the neighbouring country, which he has likewise described; but more particularly distinguished his retreat by preparing and publishing his great work on physiology.

Notwithstanding the amplitude and success of Haller's labours in the various branches of medical knowledge, it was principally on physiology, which seems to have been his peculiar delight, that he displayed the whole force of his genius, and founded his merit as an *inventor* in science.

His outlines of Physiology, or *Primæ Linæ Physiologicæ*, published at Gottingen in 1747, delineate the plan, and were the prelude to his immortal work, which he modestly styles *Elements* only, or *Elementa Physiologiæ Corporis Humani*, in eight volumes in quarto, which successively made their appearance from 1757 to 1766. In conformity to Boerhaave's plan, this part of the science of physic is emancipated from theoretical subtlety, from the shackles of metaphysical, mechanical, and chymical hypotheses, with which, for ages, it had been incumbered, and, for the first time, built on the true basis of anatomical science.

The exquisite knowledge which he has displayed in relation to the structure of the human body, his indefatigable researches into the discoveries and opinions of all his predecessors, the judicious selection of them to establish his own, his skill in comparative anatomy, and the application of the whole to illustrate the human frame, afford a striking instance of learning, industry, penetration and genius.

On his return to Bern he was elected member of the chamber of appeal for the German district of the council of finances, of the committees for matrimonial affairs, and for improving the small livings in the French district of the canton; he was also appointed perpetual assessor of the council of Health; with an annual salary of about £100 as a token of his country's gratitude for having declined so many splendid offers from foreign courts, and for preferring his native place to the advancement of his fortune. In these several offices he performed essential services to the state by promoting the most useful institutions, proposing necessary alterations, and framing new laws and ordinances. In his capacity of assessor to the Chamber of Health, he was particularly useful in forwarding the most important regulations; such as the prohibition of empirics, the recovery of drowned persons, and the means to prevent the spreading of the distemper then prevalent among the cattle in various parts of Europe.

He also shewed himself a friend to humanity, by the zeal with which he assisted in obtaining from government a public establishment for orphans, by his activity in providing a fund, and by drawing up the plan. As a member of the Economical Society, he laboured much to improve the state of agriculture, and made many experiments for

that purpose. In the meetings of the Great Council he delivered, on important occasions, his opinion with a manly freedom and lively eloquence, the result of the soundest judgment and the most feeling heart.

In 1766 and the following years this great man, who had hitherto enlightened science from his closet, displayed in the theatre of public life the more active and distinguished parts of a patriot and politician. He re-established the harmony and settled the disputes between the Vallais and the canton of Bern by a successful negotiation, in which he fixed the boundaries of the two states; he was associated with the most enlightened characters of the republic in terminating the dissensions of Geneva; he drew up the principal dispatches to the court of Versailles on the subject of the changes projected at Versoi, on which occasion he held a personal conference with the French ambassador, and was employed to prepare the plan of a treaty between the canton of Bern and the Elector of Bavaria, relating to the purchase of salt.

On the conclusion of these public employments Haller, who had now attained the sixty second year of his age, withdrew from the bustle of life, and lived in a retired manner, fulfilling the duties of a father, a citizen, and a magistrate; and, although his health gradually declined, yet his activity was undiminished. He resumed his literary labours, which had been necessarily interrupted amidst his other more important avocations. He published, in 1768, his history of Swiss plants; and, in 1771, the first part of his *Bibliotheca Medicinæ*.

No part of Haller's writings affords a more striking example of the value of early and persevering industry, than this publication. That habit which he formed so early as the eighteenth year of his age, of noting his opinion of books and authors, accumulated a considerable mass of materials, and thus enabled him afterwards to turn them to very useful purposes. By these means the foundation of his *Medical Library* was laid, even before he gave the improved edition of Boerhaave's *Methodus Studii Medici*, in 1751.

Boerhaave used to recommend to his students the books which they ought to consult on each subject; this catalogue was, in 1726, surreptitiously and inaccurately printed, and formed only a small volume in octavo; many necessary observations were forgotten, and various authors both modern and ancient omitted. Haller undertook to supply these deficiencies; and extended the publication to two volumes in quarto. In order to appreciate the merits of this compilation, it is necessary to observe, that various lexicons and catalogues of medical authors were extant; but the writers had merely given bare lists and titles, unaccompanied by that critical discrimination of the design, doctrine, and general merit of each author, which rendered these volumes so highly acceptable. In this manner Haller has given, under that classical method which Boerhaave recommended, his opinion of more than four thousand volumes.

In the extension of this plan, as it appears in his own *Bibliotheca*, Haller begins, by tracing the history of each branch of medicine from its origin through the preceding ages, and, by connecting the history of each in the several periods, has, in some measure, made his publication a compendious history of physic.

His extensive knowledge of ancient and modern languages enabled him to comprehend a large field; his indefatigable industry, united to great penetration in investigating the doctrines of the ancients, equally exhibits his erudition, and that sound judgment by which he has appreciated the merit of those sages of physic, in a manner highly interesting and instructive. In his judgment of the moderns he is candid and impartial; his great knowledge of his subjects qualified him to distinguish all original doctrines, new facts and observations, and to guard against such errors as might mislead young and

incautious practitioners, who are too apt to be influenced by imbibed theories, and prejudice towards particular authors.

He has given additional value to his work, by annexing to the account of celebrated books short biographical anecdotes of the authors. He mentions all the different editions that came to his knowledge, particularly marking such as were in his own library. And it is a matter of astonishment that, in this manner, he notices and reviews not fewer than 11,000 volumes. As the literary history of physic was among the favourite objects of Haller, this publication cannot but be highly acceptable to such as possess a congenial taste; while the general use and information it affords are sufficiently obvious. Eight volumes were published between the years 1771 and 1778. The anatomical, including the physiology, the botanical, and the chirurgical, were each comprised in two volumes, and bring down the respective subjects nearly to the present time. Two, on the practice of physic, were published by Haller himself, a third after his decease by Dr. Tribolet, and a fourth by Dr. Brandis of Childensheim, from the manuscript of Haller, which the learned editor has considerably augmented.

Haller employed the latter period of his life in sending extracts from eminent publications for the *Bibliothèque Raisonnée*; furnished many of the articles for the supplement to the Paris Encyclopédie, for the quarto improved edition of the same work published at Yverdon, and for the dictionary of natural history printed at the same place. He meditated also a new edition of his great physiological work, of which he put forth the first volume in 1777, only a few months before his death.

His active imagination brooding on the civil and political affairs in which he had been lately engaged, produced between 1771 and 1774, his three political romances, *Ufong*, *Alfred*, and *Fabius and Cato*, which treat of the despotic, monarchical, and republican governments. In *Ufong* he sketches, with a masterly hand, the abuses of absolute authority, and sets forth, in the character of the principal personage, the happy effects which may be derived from a virtuous and intelligent sovereign, even amidst the horrors of oriental despotism. In *Fabius and Cato* he describes, with an animation and spirit worthy of ancient Rome, but with a partiality natural to a republican, the aristocratical government as most friendly to the display of patriotism, and most congenial to the exertions of genius. In *Alfred* he displays the advantages of a limited monarchy, wherein the balance of power is wisely distributed, and which, while it avoids the extremes of either, enjoys the benefits of both. In these romances he discovers sound principles of legislation, great political sagacity, a deep insight into human nature, and an extensive acquaintance with history.

When we consider Haller as a man of piety and a Christian, we observe him tracing, from a comprehensive view of the creation in its grandest as well as in its minutest parts, the necessary existence of a Supreme Being, and the great principles of natural religion. We see him demonstrating the divine origin of Christianity from a profound study of the New Testament, from the excellence of its morality, its manifest influence over the happiness of mankind, and its tendency to meliorate our nature; we find him proving himself, both in his life and writings, a zealous friend and able advocate of the revealed doctrines.

Haller, at a very early period of his life, undertook the defence of natural and revealed religion. In 1732, in his preface to his poetry, he declared himself firmly convinced of their truth; in 1747 he rejected with horror the dedication which La Mettrie offered to prefix to his work entitled "*L'Homme Machine*," and he declared in various literary journals, that he neither acknowledged as his friend, or his disciple, a man who entertained such impious notions. In a preface which he published in 1751, to Formey's abridgment of Crouzza's "*Examen du Pyrrhonisme*," he paints in the strongest colours,

colours, the dreadful effects of infidelity both on society and individuals. He put forth, in the German tongue, "Letters to his Daughter on the Truth of the Christian Revelation;" he published an extract from Ditton's "Truth of the Resurrection of Jesus Christ," which he acknowledges to have first cleared any doubts he entertained on that subject. He avows, at the same time, that he received infinite satisfaction from the study of the New Testament, because he was never more certain of holding converse with the Deity, than when he read his *will* in that divine book.

In 1775, he finally gave to the public, also in the German language, "Letters concerning several late Attempts of Freethinkers yet living against Revelation." In this work the author examines and refutes the objections to Christianity, advanced in so lively and dangerous a manner by Voltaire in his *Questions sur l'Encyclopédie*. "If this latter publication," adds Sennebier, "may be considered as an Index to the Doubts and Arguments against the Christian Religion, the work of Haller may be entitled an Index to the Answers in favour of the same Revelation, to be consulted by those who wish impartially to discuss both sides of this important question. When learning and philosophy, instead of being employed in supporting sceptical tenets by artful sophistry, thus lend their united assistance to the cause of religion, they truly become an honour to the possessor, and a benefit to society.

But even this great and good man was not exempt from a too anxious solicitude for his welfare in a future state. That depression of spirits, which ought justly to be considered as the effects of disease, and the warmth of his imagination conspiring perhaps with the narrow principles of Calvinism, in which he had been educated, led him to reflect rather on the *justice* than the *mercy* of the Deity, and to bewilder himself in the endless mazes of predestination and grace. In one of his desponding fits, he compared himself to a man placed on the edge of a precipice without any support, and expecting every instant to fall. At another moment, animated with a passion for science, he breaks out, in a letter to his friend Bonnet, into an exclamation, expressive of his regret to quit a world which he had improved by his discoveries, and which he might still further illuminate by his zeal and application. "O my poor brain, which must return to dust; and all the knowledge and information which I have been collecting with such unwearied labour, will *fade away* like the dream of an infant."

These little weaknesses of a great mind, overpowered by constitutional irritability, and struggling against early prejudices, are more interesting to the man who feels and respects the imperfections of human nature, than the most pompous and exaggerated accounts of *unerring* wisdom, or *uniform* virtue. And it is a pleasing satisfaction to learn, that reason and religion rose superior to the gloomy despondency of sickness; and that Haller met death with the calmness of a philosopher, and the faith of a Christian. In a letter which he wrote, a few days before his decease, he speaks indeed of the tremendous grandeur of eternity, but with hope rather than with fear, and looks back upon his past life with satisfaction: amidst a few complaints uttered on his painful sufferings, he mentions his country with the most ardent affection, and offers up his last prayer for its preservation and welfare.

He continued his literary labours, and preserved his senses and composure to the moment of dissolution; he beheld his end approaching without fear and regret; "My friend," he said to the physician who attended him, "I die, my pulse is stopped," and then expired. He deceased on the twelfth of December 1777, in the seventieth year of his age.

Thus lived, and thus died, the great Haller; a man to whom Michaelis, the eminent orientalist, justly applies an observation on the genius of Aristotle; "*Neque cælo,*

neque terrâ, neque mari quicquam relinquere voluit incognitum, indole præterea adeo mirabili, ut ad singula natum præcipuè dicas."*

In his person Haller was tall and majestic, of a serious and expressive countenance; he had at times an open smile, always a pleasing tone of voice, usually low, and seldom elevated, even when he was most agitated. He was fond of unbending himself in society, on those occasions was remarkably cheerful, polite, and attentive; he would converse with the ladies on fashions, modes of dress, and other trifles, with as much ease as if he had never secluded himself from the world.

Bonnet informed me, that Haller wrote with equal facility the German, French, and Latin tongues; that he was so well acquainted with all the European languages, except Russian, Polish, and Hungarian, as to speak with the natives in their respective idioms. When he conversed on any topic of literature, his knowledge appeared so extensive, that he seemed to have made that his particular study. His profound erudition in every branch of science, is well known to all who are conversant with his works; but the variety of his information, and the versatility of his talents, are thus delineated by a person † who was his particular friend. "He possessed a fundamental knowledge of natural history; was well read in history both ancient and modern, universal and particular; and uncommonly versed in the state of agriculture, manufactures, trade, population, literature, and languages of the respective nations of Europe; he had read with attention the most remarkable voyages and travels; and was particularly conversant in the late discoveries which tend to illustrate the geography of the globe. He had even perused many thousand novels and plays; and possessed such an astonishing memory, that he could detail their contents with the utmost precision.

As it was his custom to make extracts, and to give his opinion of every book which came into his hands, as well for his own private use, as for the Gottingen Review ‡, he read most new publications, and so eager was he usually in the perusal, that he laid them upon the table even when he was at dinner, occasionally looking into them, and marking those parts with a pencil, which he afterwards extracted or commented upon. He made his remarks on small pieces of paper, of different sizes, which he placed in order, and fastened together; a method he learned from Leibnitz.

He derived from nature extreme sensibility, or rather irritability of temper, which is ever the child of genius. He spoke therefore from his own experience, when, in a letter to Voltaire, he thus expressed himself: "Providence holds with an equal hand the balance of human happiness. He has loaded you with riches, he has loaded you with glory; but misfortune was necessary, and he preserved the equilibrium by giving you sensibility. If my wishes could take effect, I would bestow upon you that *tranquillity* which flies at the approach of genius, which is inferior to genius in relation to society, but far superior in regard to ourselves: then the most celebrated man in Europe would be also the most happy §."

* He left nothing unexplored, either in the heavens, or on the earth, or in the sea, and was of such a wonderful capacity, that he seemed born for the immediate object of his pursuit.

† Ticharner Lobrede, &c. p. 87.

‡ Haller reviewed, as his department for that literary journal, all publications on history, medicine, anatomy, natural history, and several miscellaneous works, particularly those which appeared in Italy.

§ *Il faut bien que la providence-veuille tenir la balance égale pour tous les humains. Elle vous a comblé de biens, elle vous a comblé de gloire; mais il vous falloit du malheur, elle a trouvé l'équilibre en vous rendant sensible — Si les soubnits avoient du pouvoir, j'ajouterois aux bienfaits du destin; je vous donneroie de la tranquillité, qui suit devant le genie, qui ne le vaut pas par rapport à la société; mais qui vaut bien davantage par rapport à nous-même: dès-lors l'homme le plus célèbre de l'Europe seroit aussi le plus heureux.*

He was impatient under sickness as well from extreme susceptibility, as because he was precluded from his literary occupations. He was fond, therefore, of taking violent remedies, more calculated to remove the immediate effects of pain, and to check his disorder, than to cure it radically. In his latter years he accustomed himself to opium*, which, operating as a temporary palliative, only increased his natural impatience. This restlessness of temper, which occasionally disturbed his tranquillity even in his younger days, and in the full flow of his health and spirits, was considerably heightened by the advances of age, and the disorders which shattered his frame towards the close of his life.

His correspondence in every period of life was extensive, punctual, and carried on in the English, French, German, Latin, and Italian languages. Six volumes of Latin epistles, and three in the German tongue, addressed to him from men of learning in various parts of Europe, have been given to the public, but his own have never made their appearance. It is much to be lamented, that he seldom preserved any copies; being himself too much occupied for that purpose, and never sufficiently rich to maintain a secretary. His two principal correspondents to whom he opened his heart, were Bonnet of Geneva, and John Gesner of Zurich; to Gesner he wrote either in German or Latin, to Bonnet in the French tongue. This celebrated friend of Haller possesses seven manuscript volumes of his letters; being an uninterrupted correspondence of twenty-three years; begun in March 1754, and finishing only a few days before his death, in December 1777. This epistolary commerce comprehends a great variety of subjects, principally concerning physiology, natural history, the structure of the globe, politics, morality, and religion. Haller being accustomed to consult his friend on all occasions, to disclose his most secret thoughts, and to relate his diurnal occupations; these effusions of the moment discover the successive train of his studies, the progress of his discoveries, and gradual advances in knowledge.

"These letters of my most respectable friend," added Bonnet, "display his genius, his understanding, and the goodness of his heart, more fully than any of his publications. His style, concise, energetic yet picturesque, corresponds with the strength and originality of his ideas; and he speaks with no less sublimity than conviction of the great truths of natural and revealed religion. Though he treats the numerous advocates for infidelity, and particularly Voltaire, with sufficient severity; yet his heat is the ardour of conviction, and did not proceed from either pique or spirit of contradiction: he seemed as if he was personally interested in all questions on revelation, and pleaded its cause as if it had been his own. He is no less severe against those writers, who exclude the intervention of a first intellectual cause in the creation and arrangement of the universe, and particularly censures the materialists who endeavour to deduce mechanically the formation of organized bodies. In a word, his philosophy was entirely practical, because it was entirely Christian; and nothing secured his approbation, but what tended to improve the understanding, or to amend the heart."

I am concerned to find, that the publication of this correspondence, between two such enlightened and virtuous philosophers as Haller and Bonnet, which in some works had been announced to the public, should, for private reasons, be relinquished. Religion, morality, philosophy, and learning, would be greatly benefited by this epistolary commerce.

* Zimmerman informs us, that he took daily so large a quantity as eight grains. Uelber de die Einsamkeit p. 216. ed. Leipf. 1784.

Haller's library, consisting of about 4,000 volumes, was purchased for £2,000 by the emperor, for the public library of Milan, where I examined it in 1785. The collection is particularly rich in books of natural history, and is rendered invaluable from numerous annotations of Haller, written on the margins.

Haller was three times married, first to Marianne Wytten, in 1731, who died in 1735. 2. To Elizabeth Buchers, in 1738, who died in childbed the same or the following year; both natives of Bern. 3. 1739, to Amelia Frederica Teichmeyer, a German lady, who survived him. He has written and published the lives of his two first wives. He left eight children four sons and four daughters, all of whom he lived to see established.

His eldest son, Gottlieb Emanuel, who was born in 1735, followed his father's example in dedicating himself to the service of his country, and to the pursuits of literature. He was elected member of the Great Council, and obtained various employments under government, particularly the bailliage of Nyon, in which situation he died in 1786. He distinguished himself as an author by various publications tending to illustrate the history and literature of Switzerland, and particularly by his *Schweitzer-bibliothek*, or Swiss Library, in 6 volumes 8vo. of which he lived to publish only the first. In this work, deservedly esteemed for method and accuracy, the indefatigable author enumerates all the books which treat of Switzerland, in all languages, and all the works published by the Swiss on all subjects. He even descends to the minutest articles which have appeared in reviews and journals, and in most instances, where the publication deserves detail, analyses the contents, corrects the errors, and gives his opinion on the merits of the performance.

I was personally acquainted with the learned author, and am indebted to him for some curious information on Switzerland, and for several anecdotes relative to his illustrious father, which I have introduced into these biographical memoirs.

LETTER LVIII.—M. Sprungli's Collection of Swiss birds.—Of the Bearded Vulture.

M. SPRUNGLI'S cabinet of natural history, is remarkable for the collection of stuffed birds, both local and migratory, that are found in Switzerland. In 1776 this collection consisted of two hundred specimens; and when I last visited Bern, in 1786, had received an addition of fifty species.

One of the most remarkable birds in this collection, is the *vultur barbatus* of Linnaeus, the *vultur aureus* of Gesner, or bearded vulture of the English ornithologists. As many fabulous tales have been related concerning its uncommon strength and rapaciousness; as great confusion has arisen from the variety of names applied by different naturalists to the same bird, and as some travellers have doubted whether this specimen is the large vulture of the Alps, or the golden vulture of Conrad Gesner; I shall subjoin a description of some particulars principally communicated to me by M. Sprungli himself, accompanied with a drawing of the head of the natural size.

This specimen was a female bird, caught in the canton of Glarus; it measured from the tip of the beak to the extremity of the tail, six feet six inches French * measure; and eight feet from the tip of one wing to that of the other expanded; it weighed when first taken, eleven pounds. This bird, though always called a vulture, yet differs from that genus, and is referable to the eagle, in having the head and neck co-

* Six feet eleven inches one-fifth English, and eight feet six inches six-fifteenths.

vered with feathers; whereas one of the distinctions of the vulture, according to Linnæus, is that the head is destitute of feathers.

Notwithstanding this distinguishing mark, yet Linnæus was probably induced to class it with the vultures, from the general form of the body, and shape of the beak, which is the *first essential* characteristic in the genera of Birds.

M. Sprungli, however, is of opinion, that it might be classed between the vulture and the eagle; and Stor* proposes to form a new genus of it, under the name of GYPAETUS, by the following characters:

Rostrum rectum, basi cera instructum setis porrectis consertissimis barbatum; apice aurum unco sulcato.

Caput pennis tectum.

The specific character he would define thus:

Gypætus. (grandis) albedo-rutilus dorso fuscus, tænia nigra supra et infra oculos.

It inhabits the highest parts of the great chain of Alps which separates Switzerland from Italy, forms its nest in clefts of rocks inaccessible to man, and usually produces three young ones at a time, sometimes four, if we may judge from those which accompany the old birds; when they descend into the lower regions for prey. They live on animals which inhabit the Alps, such as the chamois, white hares, marmots, snow hens, kids, and particularly lambs, from which circumstance it is called *lammer geyer*, or *lamb vulture*.

If common report may be credited, this rapacious creature sometimes attacks even man and carries off children. M. Sprungli, without absolutely denying the possibility of this account, has, notwithstanding all his researches, never been able to ascertain a well authenticated instance; and thence rather concludes it a fable invented by the peasants to frighten their children. This species does not appear but in small companies, usually consisting of the two old birds and their young.

Conrad Gesner has given a short but accurate description of this bird under the name of *vultur aureus*, or gold-geyer†; and an engraving from a skin sent to him from the Grisons. The figure though rudely executed, yet exhibits with sufficient accuracy the distinguishing characters of the species and genus such as the configuration of the beak, the legs feathered down to the claws, and particularly the beard. In fine a comparison with the specimen in Sprungli's collection evidently proves it to be the same bird.

Since this great naturalist, no other person seems to have described it from nature, except Edwards under the denomination of the bearded vulture. The description of that bird, and the engraving‡ from a specimen sent from Santa Cruz in Barbary, correspond exactly with the *vultur barbatus* of Sprungli; and the head, if compared with the drawing annexed to this account, will be found to answer sufficiently.

Sprungli also favoured me with the following remarks, in answer to those travellers who assert, that his specimen is not the large vulture of the Alps, sometimes called, from its *yellowish* plumage, the *vautour jaune*, but a smaller species; because the larger sort measures occasionally fourteen feet, or more, from the tip of one wing to that of the other. He possesses two specimens of this bird; the one a full grown female, from which my description and drawing are taken, measuring eight French feet: the other a male, but young, and somewhat less. He has examined four specimens, neither of which measured more than nine feet; but as these specimens were not full grown males,

* See Stor's *Alpen Reisen*, vol. i. † See *Hist. Avium*, edit. Frank. ‡ See tab. 106. of his history.

he is ready to allow that an instance or two may possibly have occurred, in which this bird measured near twelve feet from tip to tip of the wings. Those who give it a greater expansion, have derived their information either from persons who were not naturalists or from uncertain and exaggerated reports. The same remark may also be applied to the fabulous stories recorded by the peasants, concerning its wonderful strength as well as size. It is likewise to be observed, that the peasants do not confine the name of *lammer-geyer* to this species; but extend it indiscriminately to several large birds of prey, from whence has arisen great confusion of names, and much uncertainty in the accounts of this bird.

Some ornithologists seem to have formed of it several species, which on comparison will appear to be the same, or only varieties of the same, species. Thus the bearded vulture, the cinereous vulture, and the fulvous vulture, which Mr. Latham has described as three different species, are probably the same bird as that in this collection. Of the first there can be no doubt, since Mr. Latham refers to the bearded vulture of Edwards, which I have shewn to be that of Sprungli. The cinereous vulture is described by Latham after Brisson: "Beneath the throat hangs a kind of beard, composed of very narrow feathers like hairs; legs covered with feathers quite to the toes, which are yellow; claws black*." This description accords with the bird in question, and particularly in the beard, which is the distinguishing characteristic. The fulvous vulture of Latham is the griffin of Buffon, and the French naturalist doubts whether it is not a variety of Gesner's golden vulture, which is proved to be the same as Sprungli's specimen.

While the most celebrated ornithologists have thus given to the bird different names, they have also in other instances confounded it with other birds, to which it has no other resemblance than size, strength, and voracity.

Thus Buffon erroneously conjectures the *vultur gryphus* of Linnæus, or the *condor** of America, to be the same as the *lammer-geyer*, or vulture of the Alps; whereas the description of the condor given by Linnæus, as well as by those who had seen it, differs entirely from that of the bearded vulture. The condor is described by the Swede as having "the head destitute of feathers, but covered with a slight brown coloured down, with a comb reaching along the top of the head, and having the throat naked and of a reddish colour." Frezier, in his Voyage to the South Seas, also thus describes the condor: "We one day killed a bird of prey called a condor, which was nine feet from the end of one wing to the end of the other, and had a brown comb or crest, but not jagged like a cock's; the fore part of its throat is red without feathers, like a turkey, and they are generally large and strong enough to take up a lamb. In order to get them from the flock, they draw themselves into a circle and advance towards them with their wings extended, that being drove together and too close, they may not be able to defend themselves; then they pick them out and carry them off. Gracilasso says, "there are some in Peru sixteen feet from the point of one wing to the other, and that a certain nation of Indians adored them."

Mr. Latham seems also to be no less mistaken, when on, the authority of the translator of the Abbé Fortis's Travels into Calmatia, he conceives the *vultur percnopterus* of

* Syn. vol. i. p. 14.

† Mr. Latham, in his Supplement of the General Synopsis of Birds, p. 1. seems also to adopt the conjecture of Buffon, in classing the *Lammer-geyer* and *Condor* under the same species; though he confesses, "that it still remains dubious, whether the *Lammer-geyer* be the same with the *Condor*, or a mere variety of the *Bearded vulture*." He adds also, with a candour which does him honour, "It is much to be feared, that other authors as well as myself, have greatly confounded the species of Vultures; for being like the falcon tribe, long lived, their plumage puts on a great variety of dress, sufficient to deceive those who have hitherto attempted discriminate them."

Linnæus to be the *vautour des Alpes* described by Conrad Gesner, and the same as Sprungli's specimen; whereas, on the authority of Hasselquist, who saw great numbers of the *percnopteri* in Egypt, the head of that bird is "naked and wrinkled;" and Ray says, the feet are naked; two characters that essentially distinguish it from the bearded vulture, in which the head is wholly covered with feathers, and also the feet down to the ends of the claws.

The bearded vulture not only inhabits those alps which separate Italy from Switzerland, but is also found in Corsica and Sardinia. De Hahn informed Sprungli, that he saw a bird in Corsica which was wounded in the wing, and was unquestionably of the same species as the stuffed specimen: and Lettel, in his Natural History of Sardinia, gives a figure and description of the same bird, under the name of *bartgyer*, or bearded vulture. It has also been found in the mountains of Africa; for Mr. Edwards received his specimen from Santa Cruz in Barbary, and frequently on Caucasus and the mountains of Dauria, or the south-eastern part of Siberia, as we learn from the travels of both Pallas and Gmelin.

I was surprised not to find among the Swiss birds in the catalogue, the *aigle Blanc*, or *aquila alba* of * Briffon; the *falco Italicus* †, and the *falco montanus* of the same ‡; as particularly *zwitzer-falc*, the German name of the latter, seems necessarily to imply that it must be a Swiss bird: Sprungli, however, assured me, that he never had been able to discover any of these species in the Alps; that probably the *aigle blanc*, if it exists, is a variety of the chrysaetos; and that both Briffon and Willoughby do not cite Gesner for their descriptions of the *falco italicus*, but the authority of those writers only who have never been in the Alps.

Of the crows it is worthy of observation, that the *corvus graculus* of Linnæus, or *coracias* of Briffon, is faithfully represented by Pennant, in his British Zoology, under the denomination of the red-legged crow. It is the same bird of which Conrad Gesner § has given a figure, and to which he applies the German appellations, *tabu*, *stuintaben*, *steinkrae*, and which he justly suspects to be the *cornix cornubiæ*, or red-legged crow. The *pyrrhocorax* of Gesner, which some ornithologists seem to have confounded with the *corvus graculus*, is, however, very different, and called by Linnæus *corvus pyrrhocorax*. Both these species inhabit the Alps, but the *pyrrhocorax* is the most common; and these appear, according to Sprungli's observations, to be the only species of the crow that prefer alpine situations. As to the *corvus cremita* of Linnæus, Sprungli acknowledges it is totally unknown to him. All the ornithologists indeed mention this bird as an inhabitant of the Alps, on the authority of Conrad Gesner, who describes it under the name of *corvus sylvaticus*, accompanied with a figure, which has not the least resemblance to a crow, but rather to a curlew; yet Gesner's description of it is much too imperfect to assist us in ascertaining the bird of which he treats.

LETTER LIX.—*M. Wittenbach's Collection.—Account of the Chain of Hills and Alps seen from the environs of Bern.*

THE Reverend Mr. Wytttenbach of Bern possesses a very curious cabinet, principally relating to the natural history of Switzerland, and of this canton in particular. It contains specimens of several thousand plants, among which is a large number of the alpine

* L. p. 424.

† Ib. p. 336.

‡ Ib. p. 352.

§ *Hist. Av. ed. Frank.* p. 468.

plants of Switzerland; and he has already begun to arrange the capsules, seeds, and fruits.

It is still more interesting for the great variety of fossils, stones, and petrifications collected by himself in the neighbourhood of Bern, and from the upper and lower Alps. M. Wytttenbach also possesses various shells, insects, and numerous drawings of the glaciers and upper alps. But I was most struck with that part of his cabinet, comprehending those objects of natural history, which in any degree influence agriculture, physic, arts, and trades, and which sufficiently prove the utility of that science in the progress and improvement of human comfort and knowledge. On this subject he has already published a dissertation in the Acts of the OEconomical Society at Bern.

He has not formed this ample collection from mere motives of curiosity, or from desultory views; but with a settled intention to illustrate the natural history of Switzerland in general, to form a typographical and mineralogical description of this canton in particular and to elucidate the original formation of mountains which is the favourite object of his researches, and which his frequent visits to the Alps will enable him to execute with fidelity and accuracy.

At my request, this indefatigable observer favoured me with a plan and description of that range of alps which is seen from Bern, and of the intervening district; an extract of which I submit to your perusal.

That part of the chain of Alps seen from Bern distinguished by the different names of Wetterhorn, Schreckhorn, Eger, Jungfrauhorn, Lauter-Aar-Horn, Blumli Alp, &c. is represented on the plan annexed to this letter. You will there observe this immense amphitheatre, gradually rising from the environs of Bern, to elevated peaks, covered with eternal snow, and hitherto inaccessible.

The plains and hills between Bern and Thun, are composed of rounded stones, and argillaceous stones called *molasse*, frequently ranged in alternate strata. The *molasse* at Gurten, about two miles from Bern, contains, though rarely, *glossopetræ*; and the strata of Belpberg, about seven or eight miles from the capital, are full of different species of *chamites*, *ostracites*, *globosites*, *selenites*, *strombites*, and other similar petrifications.

The ridge of hills which borders the high road between Bern and Thun contains in several places, and particularly above Mufingen, an extensive strata of *ostracites*, some pieces of which weigh more than fifteen pounds each. The situation of the strata in these different hills, their direction, their nature, and the bodies which they enclose seem to prove, that these hills formed anciently one great plain, which has been since hollowed and divided by the waters, particularly by those of the Aar.

On the slopes and summits, which in some places are of considerable elevation are frequently found those large masses of granite, that are used for the public works and buildings of Bern. These masses so nearly resemble the granite of the Grimsel, and of the mountains which compose the great central chain of the alps; as to render it probable, that in the ancient revolutions of the globe, they have been brought by the waters to the places where they are at present found, before the deep vallies, which now separate them from their original mountains, existed. The same remark may be as justly applied to the blocks of marble and other calcareous stones, which though now removed to a considerable distance from their native situation, are also discovered in large quantities upon the hills adjacent to Bern, and likewise serve for the buildings of that capital.

As we approach the town and lake of Thun, the view opens, and discovers, towards the south-east, that high calcareous chain, of which the Stockhorn, the Neunerren, and the

the Ganterish have been illustrated by the botanical labours of the celebrated Haller. This chain which joins that of Schwartzenburg towards the canton of Friburgh, is chiefly calcareous, and contains fewer petrifications than the above-mentioned hills; it is not of sufficient elevation to be covered with snow in summer.

The Niefs, which is the last mountain in this calcareous chain, stands on the borders of the lake, and separates the valley of Frutigen from that of Simme; it is peculiarly interesting to travellers, on account of the fine view from its summit; and to naturalists, because it joins to the alps. Towards its foot beds of slate have been discovered, higher up it is of calcareous stone, and near its top is found a species of pudding-stone, filled with small fragments of petrifications.

In traversing the lake of Thun the borders, which are planted with vines, are composed of rounded stones, united by a calcareous cement, as far as the mountains of St. Beat. There, near Rallingen, the rocks are calcareous and rugged, containing in a few places broken petrifications, of which it is often difficult to ascertain the species. On continuing my route at the foot of the St. Beat, I observed the first rocks that are absolutely perpendicular, and even impending, and which are marked at different elevations with furrows, occasioned by the waters of the lake that, in former periods, was probably several hundred feet above its present level. I remarked the same furrows nearly at the same elevations, in the vallies of Lauterbrunnen and Hasli, which coincidence seems to prove, that the lake of Thun once extended over all these parts, covered the whole plain of Bern, and reached as high as the Lengenbergl, where Gruner discovered those petrifications called Pholades.

Having traversed the lake of Thun, I entered the narrow but agreeable valley of Unterseen and Interlachen, on each side of which the mountains approach each other, and form, if I may so express myself, the *vestibule* of the alps. The valley separating the lakes of Thun and Brienz, which appear to have been once united, is entirely formed by stones brought by torrents from the alps. On the right is Abendberg, covered with trees and herbage, and stretching towards a group of mountains of considerable extent, yet little known, though their tops may be seen at Bern.

The Ballenhoechst, Sulek, Schnabelhorn, Schwartzberg, Schwalmern, Schilthorn, Kirchfluh, Latreyenfirst, and Dreysspitze, are the most remarkable mountains in this group, which on one side borders the valley of Lauterbrunnen, and on the other towers opposite to the Niefs, at the commencement of the valley of Frutigen. It is united by means of the Seftin alps with the Dents Rouges, and the great central chain of granitical mountains. The mountains of this group stand on a base of argillaceous schistus, containing a few petrifications, which is rarely visible but at certain elevations. Towards Lauterbrunnen particularly a fine-grained calcareous stone abounds.

To return to the valley of Unterseen. On the left is another group of calcareous mountains, extending along the lake of Brienz towards Hasli, and standing also on an argillaceous schistus, which is but rarely visible. And though the granitical chain is at a very small distance, it is, however, so entirely concealed by these secondary mountains, as to be nowhere discovered, except between Unterseen and Interlachen, where the Jungfrau presents herself in all her majesty.

From these delightful plains I attempted to penetrate towards the granitical chain of alps through narrow vallies enclosed between perpendicular rocks of an enormous height; but every where I met with secondary mountains, which, to a considerable elevation, conceal the primitive bed of granite, and render the approach to it extremely dangerous, if not impracticable. Thus the valley of Lauterbrunnen is bordered by calcareous rocks even to its farther extremity. At Sichelauenen the first masses of

granite appear, forming the base of the calcareous rocks, which are of a very great height. Continuing my route towards the chain, which stretches from the Jungfrau to the Grosshorn and Breithorn, I observed a rock of steatite, in which some veins of lead have been discovered and worked at Hohalp. Higher up is the true granitical chain, which, however, even there is frequently covered with calcareous peaks.

I found the approach to this chain less difficult at Wengenalp, the last of a group of calcareous and schistous mountains between Lauterbrunnen and Grindelwald, which there joins the Jungfrau, the summits whereof appear to be granite. In the valley of Grindelwald I observed only the argillaceous schistus and calcareous stone; the external parts of the Eger, of the Mettenberg, and of the Wetterhorn, are chiefly calcareous, and cover the granite of the central chain, and the only pieces of granite are the fragments brought into the valley by the two glaciers. That chain, which is opposite to these glaciers, and borders the northern side of the valley of Grindelwald, has an argillaceous base, which, in several places, particularly towards Hasli, contains cornua ammones, and is covered with calcareous rocks, through which it often penetrates at different heights.

I will now take a nearer view of the primitive chain, and trace the alps in the same order as they are marked upon the annexed plan. I shall consider the Jungfrau as the centre, from which I will take my departure on one side towards the Gemmi, and on the other towards the Schrekhorn, Wetterhorn, and Grimsel.

The Jungfrau, or Virgin, is one of the highest and most beautiful mountains in the canton of Bern. The granite does not appear till a very considerable elevation; its foot being in most parts covered by rocks, which are of calcareous stone, called by the natives *Staldenflub*, of which an elevated peak is denominated the Monk. On following these rocks to Sichelauinen, about two leagues from Lauterbrunnen, I observed a red stratum, that seems to form the separation between the granite and the calcareous substance; it is composed of an argillaceous slate, spotted with brown and green, and of a fine grained iron ore (as I was surprised to find) containing anomites. I observed the same stratum at the bottom of the Eger and Wetterhorn, and of several mountains towards Hasli; I remarked it at different heights; but as all access to them has been hitherto found impracticable, I cannot attempt to explain a phenomenon which merits a nearer investigation.

The chain of the Jungfrau stretches to the right by those inaccessible peaks called the Gletscherhorn, Ebenfluh, Mittaghorn, Grosshorn, Breithorn. I am entirely unacquainted with their structure, except from the fragments, which I have observed at their feet, or on the masses of ice descending from their tops. Limestone occurs at very considerable heights; particularly white marble, and a fine grey marble, which is the matrix of a red hematite filled with innumerable small crystals of iron of an octagon figure, and attractable by the magnet. Besides these stones I noticed on the glaciers of Breitlauinen and Breithorn, various species of granite, both foliated and in blocks, of iron-stone, of *saxum fornacum*, or *Stelfstein*, and of argillaceous and micaceous schistus. All these fragments sufficiently prove that granite prevails in the higher parts, although it is frequently covered with secondary mountains.

To the right is the majestic Blumlis alp, which is a fine object from the plains; a large glacier mentioned by no author stretches at its feet. I first noticed it from the opposite heights of Oefchenengrat, and at the same time observed, that the feet of the Alpshelenhorn and Blumlis alp are covered with black schistus, and that the granite is not apparent, but at a considerable height.

A few days after this expedition, I mounted to the summit of the glacier, called by the peasants *Gamchigletcher*, where it forms a very steep ridge towards the valley of *Lauterbrunnen*. From thence I beheld the vast amphitheatre of the *Lauterbrunnen* glaciers; I remarked also, that the valley of *Lauterbrunnen* ends at this place; that it has only one issue behind *Blumlis alp*, where a large glacier, with a plain and unbroken surface, stretches towards the valley of *Gaster*. Here then is the extremity of the valley of *Lauterbrunnen*, which expands at the feet of the *Eger* and the *Jungfrau*, continues almost in a straight line as far as *Sichellauinen* to the foot of the *Gletcherhorn* and of the glacier of *Stufstein*, where it forms an angle, and bends towards *Blumlis alp*.

The ridge of the glacier of *Gamchi* is of a black calcareous stone, which, in many places, is of a fine texture, and splits into lamina of a rhomboidal form; in other parts it is coarsely granulated, containing white and black spar. The sides of the *Blumlis alp* bordering the glacier are black slate, in which I found several *balconites*, and a fragment of a *cornu ammonis*, a foot in diameter. The pieces of granite which are discovered upon the glacier, and which most probably fell from the summits of the *Blumlis alp* and of the *Dents Rouges*, is very similar to that granite, containing veins of lead, near *Sichellauinen* in the valley of *Lauterbrunnen*.

The granitical chain which extends on the right by the *Alpschelenhorn* and the *Altit*, is entirely concealed and lost in *Mount Gemmi*, where only calcareous stone and slate are discovered. As I have not yet had any opportunity to examine the mountains of *Simmenthol* and of *Gessenay*, I cannot inform you, if the granite appears through their calcareous covering.

But let us return to the *Jungfrau*, and trace the mountains towards *Grindelwal* and the *Grinzel*. The two high pyramids which tower near the *Jungfrau* are the two *Egers*, called from their position *Exterior* and *Interior*. Calcareous stone is visible to a great height; many persons indeed pretend, that the whole side of the *Exterior Eger* towards *Grindelwald* is entirely calcareous; but I am convinced, from repeated observations, that the substance of these mountains is granite, though it is covered with calcareous stone lying on reddish slate, which in many places forms a species of *breccia*, composed of an argillaceous base, covered with calcareous fragments. You observe behind the *Exterior Eger* two small peaks which seem united by a ridge; these are the *Viescherhorn* and the *Zefenberg*, which overlook the inferior glacier of *Grindelwald*. The stones that have fallen on the glacier shew, that their summits, as well as that of the *Schreckhorn*, are of granite in blocks, veined granite, and other lamellated rocks, which frequently contain great *steatites*, *amianthus*, and crystals of *quartz*.

The high peak which appears to stand near the *Zefenberg* is at a very considerable distance, and probably separated from it by large vallies of ice. This peak, which has hitherto escaped the mention of travellers, seems to be the *Finster Aar-horn*, and can only be approached from the *Grinzel*, or by traversing the glacier of the *Aar*. I have seen it from the summits of the *St. Gothard*, from one of the heights which separate the valley of *Grindelwald* from the lake of *Brientz*; I have been at its foot upon the glacier of the *Finster-Aar*; on all sides, and in all places, its elevation is stupendous, and appears to me to exceed even that of the *Schreckhorn*, which has been hitherto considered as the highest*.

The

* This conjecture of *M. Wittenbach* is confirmed by actual measurement taken geometrically by *Tralles*.

Height of the principal Alps in the canton of *Bern*:

	English Feet.		English Feet.
<i>Finsterarhorn</i>	14,116	<i>Mouch</i>	13,510
<i>Jangfrauhorn</i>	13,730	<i>Schreckhorn</i>	13,397

Eiger

The Schreckhorn, or peak of terror, rises between the two glaciers of Grindelwald. Concealed by its base, the Mettenberg, it is not seen from the valley of Grindelwald, and the rugged paths which lead across the superior glacier to its foot are extremely difficult and dangerous; part of it is observed from that glacier. The tops of the Mettenberg are of granite, and the lower parts of lamellated rock, blended with mica and quartz. The piked summits of the Schreckhorn, which rise to an enormous height, appear to be of pure granite and other primitive stones.

The next in this chain is the Wetterhorn, or Stormy Peak, whose perpendicular sides border the superior glacier. The exterior part of this mountain is of calcareous stone to a very considerable elevation, but the summits are undoubtedly of primitive rock. I noticed along the sides the same red stratum, which makes its appearance on the Eger and at the foot of the Jungfrau. Behind the Wetterhorn is seen an elevated rock, which is said by the inhabitants of Grindelwald to border the glacier of the Lauteraar, and which from thence has been ascended by several *chasseurs*.

Examining the stones brought down by the superior glacier, I did not discover much granite in mass, but often veined granite, and lamellated rock, which frequently enclose pieces of the corneous spathosus mixed with steatites, pyrites, and quartz. The foot of the Wetterhorn and that of the Mettenberg contains, in several places, a fine species of white marble, with red, green, and yellow veins; a quarry of which, now covered by the inferior glacier, was formerly worked.

In passing from Grindelwald to Meyringen I traversed the Scheidek, which stands on the foot of the Wetterhorn, and entirely consists of black slate; this slate continues to compose the chain that divides Grindelwald from the plains of Hasli and the lake of Brienz.

Descending the Scheidek I observed, on my right hand, the chain that joins the Wetterhorn and runs towards the Grimsel. As I have not particularly examined this chain, I shall only remark in general, that from an investigation of the stones and fragments which strew the vallies and sides of the hills, it appears to contain the same species of marble which I found on the superior glacier of Grindelwald, also red slate, argillaceous breccia, and various granites. But this much is certain, that the front of these mountains is entirely concealed by secondary substances, and that the true region of granite was not apparent, until I had passed Meyringen and ascended the Grimsel, during the greater part of which ascent I only noticed lamellated rocks and granite. All the mountains which form the Grimsel and the neighbouring chain are concealed in my plan by the Wetterhorn; they extend behind the Schreckhorn as far as the Finster-aar-horn. This is the true region of granite and other primitive rocks, the heart of the central chain, and the great observatory of the naturalist.

	English Feet.		English Feet.
Eiger	13,086	Niesen	7,829
Wetterhorn	12,217	Morgenberghorn	7,456
All Els	12,194	Hohgant	7,290
Frau	12,153	Stockhorn	7,218
Doldenhorn	12,039		

LETTER LX.—*Excursion to Thun, Worbe, and Hindelbank.—Tomb of Madame Langhans.*

THE environs of Bern are in general extremely delightful, and no road exhibits a more pleasing variety of hill and dale than that which leads to Thun. It runs through an agreeable country, winds through fertile meadows, enriched with dark forests of pine and fir, and occasional groves of beech and oak; the cattle, lately descended from the Alps, were browsing on the pastures, and added to the animation of the scenery. The well-being of the inhabitants is visible from the cultivation of the grounds, and from the number and neatness of the cottages and farm-houses which are scattered about the fields, skirted by trees, or half concealed amid tufts of wood.

Thun is distant about twelve miles from Bern*; it occupies the bottom and brow of a hill, and stretches on both sides of the Aar; it contains twelve hundred souls, enjoys considerable immunities, has its own magistrates and courts of justice, in which the bailif from Bern always presides, and from whose decision an appeal lies to the capital. The inhabitants employ themselves in carding and spinning silk for the manufactures of Basle; some of the burghers possess large herds of cattle.

To the north east stand, on an eminence, the church, and the castle, which is the residence of the bailif, and occupies the highest point. From its windows I enjoyed a most pleasing and extensive view, not inferior in its kind to any prospect in Switzerland. Underneath is the town, occupying both sides of the Aar, standing in a rich plain of pasture, and bounded by a chain of hills, black with forests of fir, which extend from Bern and join the Nies, a brown and rugged mountain, that rises rapidly from the edge of the lake. To the east a small ridge covered with vines and trees; and to the south-east part of the lake of Thun, bounded by hills rising to the mountains and alps of Lauterbrunnen and Grindelwald, "*piled up to the clouds.*"

The Aar flows from the lake between two level promontories prettily sprinkled with trees, on one of which stands the castle of Schadan. The lower parts of this view contrasted with the rugged rocks and mountains, resemble a painting of Claude by the side of a Salvator Rosa.

From Thun I returned about six miles to the village of Masic, where I quitted the high road, and passed through pleasant thickets of beech and oak, over fields and inclosures; the cottages and hamlets agreeably situated in lawns and amid clumps of trees. In about an hour and a half I entered the road which leads from Bern to Langenau, and ascending to the upper part of the village of Worbe, passed an agreeable day with an amiable family, who favoured me with a most cordial and polite reception. The view from their house, which stands in the midst of a field, is not inferior to that from the castle of Thun; it commands a rich inclosed and well-wooded country, gently broken into hill and dale, and watered by many lively streams; the huge white peaks of the Jungfrauhorn, Schreckhorn, and Wetterhorn, overtopping a hill embrowned with firs.

I made also an excursion to Hindelbank, a village about four miles from Bern, in order to examine the tomb of Madame Langhans, a most celebrated work of Nahl, a Saxon sculptor. Being employed in constructing a sepulchre for Count d'Erlach, he was lodged in the house of the clergyman, his particular friend, whose wife, a woman

* Musingen, midway between Bern and Thun, is rendered memorable in the unhappy fate of this country, by the assassination of General d'Erlach, commander of the Bernese army, and Lord of Hindelbank. See the Introduction.

of uncommon beauty, expired in child-bed on Easter-eve. Struck with the time of her death, animated by the recollection of her beauty, sympathising with the affliction of her husband, he conceived and finished this affecting monument. It is placed in the body of the church, sunk into the pavement like a grave, and covered with two folding-doors. When these are opened a grave-stone appears as if just rent into three fractures, through which is half-discovered the figure of a woman slightly veiled with a shroud. She is represented at the moment of the resurrection, when "*the graves are commanded to yield up the dead;*" her right hand is gently raising that portion of the broken stone which lies over her head; and the other holds a naked infant struggling with its little hands to release itself from the tomb. "*Here am I, Lord, and the child whom thou gavest me* *," are the sublime words which form the inscription. Below is the name of the deceased, "Anna Magdalena Langhans, wife of the clergyman. Born 1723; died 1751." The workmanship is by no means inferior to the original design; the artist has formed the whole sepulchre out of one block, and so naturally expressed the swelling of the stone, that the fragments seem as if they had just burst, and were in the act of opening. The only circumstance to be regretted is, that the materials are not so durable as such a monument deserves; being of sand stone, they are too soft to resist the effects of time, and even now exhibit some symptoms of decay.

Nothing perhaps can more strongly display the superior effect of simplicity over magnificence, than the comparison of this tomb with the mausoleum of Count d'Erlach in the same church. The mausoleum consisting of several marble figures, executed in a masterly style, and loaded with all the emblems of rank and opulence, scarcely attracts a momentary attention; while this simple grave stone "*speaks home*" to every heart of taste and feeling.

LETTER LXI.—*Visit to Michael Schuppach, the Physician of Langenau.*

Langenau, Sept. 18.

YOU have heard perhaps of Michael Schuppach, the famous Swiss doctor; of whose sagacity in discovering the seat of disorders, and applying suitable remedies, many wonderful stories are recounted; and which, like Virgil's Progress of Fame, have increased in the marvellous in proportion as they receded from the scene of action. I am now lodged in the house of this celebrated Æsculapius: it is situated above the village of Langenau, on the side of a steep acclivity; from which circumstance he is generally styled *the physician of the mountain*.

On our arrival we found the Doctor in his apartment, surrounded by several peasants, who were consulting him; each having brought with him a small bottle, containing some of his water; for, by inspecting the urine, this medical sage pretends to judge of the patient's case. His figure is extremely corpulent; he has a penetrating eye, and a good-humoured countenance. He seats himself opposite to the person who consults him, one moment looks at the water, the next at the patient; and continues examining alternately the one and the other, whistling occasionally during the intervals. He then opens the state of the case, acquaints the consultant with the nature of his complaints, and has sometimes the good fortune to hit upon the true cause. In a word, his knack of discovering disorders by urine, has gained such implicit faith in his skill, that we might as well question the Pope's infallibility to a zealous catholic, as the Doctor's in the pre-

* *Hier Herr bin ich; und das kind, so du mir gegeben hast.* An engraving of this monument is published by M. de Mechel of Basle.

sence of his patients. He has certainly performed several great cures, and the rumour of them hath brought persons from all quarters of Europe for his advice.

The Doctor was formerly a village surgeon, has a slight knowledge of anatomy, and is tolerably versed in botany and chemistry. His acquaintance with the theory of physic is said to be limited; the greater part of his knowledge being derived from his extensive practice, though he never stirs a quarter of a mile from his own house; for he would not take the trouble of going to Bern, even to attend the King of France.

It is more than probable, that much of this extraordinary man's success is owing to the benefit which his patients receive from change of climate, to the salubrious air of this place, and to the amusement arising from the constant succession of company. But whatever may have been the causes of his celebrity, it has come to him, as all accounts agree, unsought by himself. He has certainly many excellent qualities; is humane and charitable to the highest degree, not only furnishes the indigent peasants who consult him with medicines gratis, but generally makes them a present in money besides, and always appropriates a certain portion of his gains to the poor of his parish. His wife and grand-daughters are dressed like the peasant women of the country, and he has shewn his good sense in giving the latter a plain education; the eldest he bestowed in marriage, when she was but fifteen, upon one of his assistants, and with her £1300; no inconsiderable portion for this country. He procured a match for her so early he said, to prevent her being spoiled by the young gentlemen telling her that she was pretty, and inspiring her with the ambition of marrying above her rank.

If domestic harmony, and the most perfect simplicity of manners, have any pretensions to please, you would be highly delighted with this rural family. The wife is a notable active woman, and superintends the household affairs with remarkable cleverness; she assists her husband likewise in preparing his medicines, and, as he talks no other language than the German, she serves occasionally as his interpreter. As a proof of his confidence in her administration of his affairs, she acts as his treasurer, and receives all his fees, which in the course of a year amount to a considerable sum; for, although he never demands more than the price of his medicines, yet no gentleman consults him without giving an additional gratuity. She has likewise received many presents from those who have reaped benefit by her husband's prescriptions; several of these presents consist of valuable trinkets, with which on days of ceremony she decks herself to the best advantage, in the simple dress of the country,

The family sit down to table regularly at twelve o'clock; there are always some strangers of the party, consisting not only of those persons who are under the Doctor's care, but of travellers, like ourselves, led by motives of mere curiosity. When the weather is fine, and their guests more numerous than usual, dinner is served in an open shed that overlooks the adjacent country, with a distant view of the glaciers beyond the lake of Thun. Yesterday some peasants whom the Doctor invited formed part of our company; after dinner he gave some money to those that sat near him, and ordered one of his grand-daughters to distribute his bounty to the others. The benevolence of the old man, his gaiety and good-humour, the cheerfulness of his family, the gratitude of the poor peasants, the beauty of the prospect, and the fineness of the weather formed altogether a most agreeable and delightful scene; and I do not remember to have ever partaken of any meal with a more sensible and heartfelt satisfaction.

This singular man is very often employed in giving advice from eight in the morning till six in the evening, with no other intermission than during the time he is at table. His drugs are of the best kind, for he collects the simples, and distils them himself; his house, like those of the peasants, is constructed of wood; and, though always full

of people, is remarkably neat and clean ; in short, every thing about him bears the appearance of the pleasing simplicity of former ages.

I had almost forgotten to tell you that I consulted him this morning ; and have reason to be highly satisfied with his prescription : for he told me I was in such good health, that the only advice he had to give me, was “ to eat and drink well, to dance, be merry, and take moderate exercise.”

It is now Langenau fair, and the village is crowded with the neighbouring peasants. Great numbers of the men have long beards, and many of them cover their heads with a woman's straw hat, extremely broad, which makes a grotesque appearance ; their dress is chiefly a coarse brown cloth jacket without sleeves, with large puffed breeches of ticking. The women, who are remarkably handsome, wear their hair plaited behind in tresses, with the ribband hanging down below the waist ; a flat plain straw hat, which is very becoming ; a red or brown cloth jacket without sleeves ; a black or blue petticoat bordered with red, and scarcely reaching below the knees, red stockings with black clocks, and no heels to their shoes ; their shifts of extremely fine linen, fastened close round the neck by a black collar with red ornaments ; the better sort have chains of silver between the shoulders, brought round under each arm, and fastened beneath the bosom, the ends hanging down with silver ornaments.

I am so charmed with the situation of this village, the cheerfulness and singularity of this rustic and agreeable family, and the uncommon character of the humane Doctor, that I could with pleasure continue here some days ; but I am pressed for time, and have a long journey before me.

THIS celebrated empiric died in March 1781 ; and Langenau, which I again visited in August 1786, was no longer the resort of the sick, the valetudinarian, the curious, and the idle. The Doctor gained by his practice £10,000 ; of which sum his wife received a third, and the remainder was distributed among his son-in-law and grandchildren.

Langenau is situated at the commencement of the Emmethal, a valley remarkable for its cultivation and beauty. Many of the farmers are extremely rich ; the people appear in general contented and happy ; the wooden cottages scattered about the fields, are uncommonly neat and comfortable, and announce, in their appearance, the happy condition of the peasantry.

LETTER LXII.—Payerne.—Moudon.—Geneva.—Calvin.

Geneva, Sept. 6.

I TOOK leave of my friends at Langenau, in order to proceed to Avignon ; where I am going to pay a visit to the *Abbé de Sade*, author of the interesting memoirs of the life of Petrarch. Monsieur de Vigur, a senator of Soleure, offered me a place in his carriage to Bern, as my principal object in travelling is to acquire intelligence, I gladly embraced this opportunity of leading my worthy and well-informed companion into a conversation, not only concerning the government of Soleure in particular, but in relation also to Switzerland in general, and I found him exceedingly well-disposed to answer the several questions he allowed me to propose.

The next day I repassed through Morat and Avenches, and slept at Payerne, a town in the canton of Bern, which enjoys considerable privileges. Upon the bridge over the Broye is an ancient Roman inscription.

Moudon is a handsome town, the principal burgh of the bailliage, and formerly the capital of all that part of the Pays de Vaud, which belonged to the Duke of Savoy. It was the ordinary residence of his chief baillif, and the place where the states were accustomed to meet. The bailif appointed by the sovereign council of Bern resides in the castle of Lucens, built upon the summit of a mountain, in a situation exceedingly picturesque; it formerly belonged to the Bishops of Lausanne, and was one of their favourite seats, before the reformation was introduced into this country.

Geneva lies upon the narrowest part of the lake, where the Rhone issues in two large and rapid streams, which soon afterwards unite. That river separates the city into two unequal divisions, receives the muddy Arve in its course, and flows through France into the Mediterranean. The adjacent country is uncommonly picturesque, and abounds in magnificent views: the several objects which compose this enchanting prospect are the town, the lake, the numerous hills and mountains, particularly the Saleve and the Mole, rising suddenly from the plain in a variety of fantastic forms, backed by the glaciers of Savoy, with their frozen tops glistening in the sun, and the majestic Mont Blanc rearing its head far above the rest.

Geneva, which stands partly in the plain upon the borders of the lake, and partly upon a gentle ascent, is irregularly built; the houses are high, and many in the trading part of the city have arcades of wood, which are raised even to the upper stories. These arcades, supported by pillars, give a gloomy appearance to the street; but are useful to the inhabitants in protecting them from the sun and rain. It is by far the most populous town in Switzerland, and contains 24,000 souls. This superiority of numbers is undoubtedly owing to the great industry and activity of the inhabitants, to its extensive commerce, to the facility of purchasing the burghership, and to the privileges which government allows to all foreigners. The members of this city are distinguished into citizens and burghesses, inhabitants and natives*. The citizens and burghesses are alone admitted to a share in the government; the inhabitants are strangers allowed to settle in the town with certain privileges, and the natives are the sons of those inhabitants, who possess additional advantages; the two last classes form a large majority of the people.

The liberal policy of this government in receiving strangers and conferring the burghership is more remarkable, as it is contrary to the spirit and usage of the Swiss. It is here indeed more necessary, the territory of this state being so exceedingly small, that its very existence depends upon the number and industry of the people; for, exclusive of the city, there are scarcely 16,000 souls in the whole district of the Genevois.

The reformed doctrines first preached at Geneva in 1533 by William Farel, a native of Gap in Dauphiné, and Peter Viret of Orbe, owed their final establishment to John Calvin, who was born at Noyon in 1509, and being driven from France by the persecutions which Francis the First raised against the protestants, made his first appearance in this city in 1536.

Zuingle, Cœcolampadius, and Haller had reformed the greater part of Switzerland some years before that period; but Calvin has given his name to the sectaries of the reformed religion, in the same manner as the new continent took its appellation from Americus Vespucius, notwithstanding the original discovery was made by Columbus. Although Calvin was not the first reformer of Geneva, yet, as he gave strength and solidity to the new establishment, and founded the ecclesiastical form of government, he

* Since the late revolution in 1782, there is a fifth class, called *domiciliés*, who receive from the magistrates an annual permission to remain in the city.

totally eclipsed the fame of his friend William Farel, who scattered the first seeds of reformation. In truth, so great was the ascendancy which Calvin, although a foreigner, acquired over the citizens, that he possessed considerable influence even in civil matters, and bore a large share in settling the political constitution. Conscious that religion derives support from every branch of knowledge, he liberally promoted the cultivation of science, and the study of elegant literature. To this end, as well as to encourage theological erudition, he prevailed upon government to establish a public academy; but with singular disinterestedness declining the offer of being perpetual president, he obtained that office for his friend and fellow-labourer Theodore Beza. In this new seminary Calvin, with Theodore Beza, and his other colleagues, eminent for their superior knowledge, read lectures, with such uncommon reputation and success, as attracted students from all quarters.

There is such a striking splendor in the brighter parts of this celebrated reformer's character as to render us, at first glance, almost insensible to those dark spots which in some instances obscure its glory. But when we reflect on his asperity and arrogance, and, above all, on the cruel persecution of Servetus, we cannot but lament, that he did not rise superior to the intolerant principles of the age, which, in all other instances, he helped to enlighten. With regard to his intolerant principles, it must be acknowledged, that the same uncharitable spirit prevailed also among many of the most celebrated reformers, who unaccountably conceived, in opposition not only to the genius but to the clearest precepts of the gospel, that persecution for conscience' sake, although unchristian in every other ecclesiastical establishment, was justifiable in their own.

The republic of Geneva is at present the most tolerating of all the reformed states in Switzerland; being the only government in this country which permits the public exercise of the Lutheran religion. In this respect the clergy, no less wisely than suitably to the spirit as well as the letter of the Christian revelation, have renounced the principles of their great patriarch Calvin, although they still hold that able reformer in high veneration; yet they know how to distinguish his virtues from his defects, and to admire the one without being blindly partial to the other. I am, &c.

LETTER LXIII.—*On the Literature of Geneva.*

TO a man of letters Geneva is particularly interesting; learning is divested of pedantry, and philosophy united with a knowledge of the world; the pleasures of society are mixed with the pursuits of literature, and elegance and urbanity give a zest to the profoundest disquisitions. Nor are letters confined in this city merely to those who engage in them as a profession, or to those whose fortune and leisure enable them to follow where genius leads. Even the lower class of people are exceedingly well informed, and there is perhaps no city in Europe where learning is more universally diffused. I received great satisfaction in conversing even with several tradesmen upon topics both of literature and politics; and was astonished to find in this class of men, so uncommon a share of knowledge. But the wonder ceases, when we are told, that all of them were educated at the public academy, where the children of the citizens are taught, under the inspection of the magistrates, and at the expence of government.

One circumstance in this seminary particularly contributes to excite the industry and emulation of the students; prizes are annually distributed to those who have distinguished themselves in each class. These rewards, consisting of small medals, are conferred with

such

such solemnity as cannot fail of producing great effect. A yearly meeting of all the magistrates, professors, and principal inhabitants, is held at the cathedral, when the first syndic himself distributes, in the most public manner, the honorary retributions. I met this morning one of the scholars, and, seeing his medal, inquired its meaning. "*Je la porte,*" replied the boy, scarcely eight years old, "*parce que j'ai fait mon devoir.*" I required no stronger proof to convince me of the beneficial influence upon young minds, from these encouraging and judicious distinctions, than appeared from this sprightly specimen. The citizens enjoy the advantage also of having free access to the public library; and by this privilege not only retain but improve that general tincture of learning which they imbibe in their early youth.

The public library owes its origin* to Bonnivard, prior of St. Victor, who was twice imprisoned for having asserted against the Dukes of Savoy the independence of Geneva, and who considered the hardships he had suffered, and the perils he had escaped, as ties that endeared him more strongly to a city which he had adopted as his own. He was a principal promoter of the reformation by gentle means and gradual instruction. He closed his benefactions to his beloved city by the gift of his valuable manuscripts and books, and by bequeathing his fortune towards the establishment and support of the seminary. His works, which chiefly relate to the history of Geneva, are preserved with that care and reverence due to so eminent a benefactor.

The library contains twenty-five thousand volumes, and many curious manuscripts, of which an accurate and learned catalogue has been lately published by the Reverend M. Sennebier the librarian. He has attempted to determine the ages of the several manuscripts; he describes their form and size, the materials on which they are written, the ornaments, the characteristic phrases, and mentions the proofs on which he grounds his opinions; he adds the notes, and distinguishes those which have never been printed, Sennebier has also favoured the world with "*Histoire Littéraire de Geneve,*" accompanied with biographical anecdotes of those natives who have been celebrated for their learning. As I should trespass too much on your time if I were to attempt sending you an account of the principal men of letters in Geneva, I shall confine myself to those only with whom I am personally acquainted.

Charles Bonnet was born in 1720. His life has been devoted to the pursuits of literature, and to the improvement of philosophy and science. He has proved by his publications, that his indefatigable industry in searching into the phenomena of the creation is equalled only by his ingenuity in explaining them. His works, printed at Neuchatel, form nine volumes in quarto, or eighteen in octavo, and contain divers subjects of natural history, many accurate observations on insects, on the vegetation of plants, considerations on organised bodies, and the contemplations of nature. By several treatises, and particularly his Analytical Essay on the Faculties of the Soul, he has shewn himself an acute metaphysician. Like his friend Haller, he has also stood forth an able advocate for the great principles of natural and revealed religion. His * Philosophical Researches on Christianity, and his treatise on the Existence of God, prove, that an intimate knowledge of nature necessarily tends to establish a rational belief of those great truths. I had frequent opportunities of conversing with this respectable philosopher; though now in the sixty-sixth year of his age, he possesses an uncommon degree of vivacity and animation, still retains his enthusiasm for the pursuits of science, and speaks with the same perspicuity and elegance as are observable in his writings†.

* A translation of his *Recherches Philosophiques sur les Preuves du Christianisme* has been given to the public by John Lewis Boissier, Esq. under the title of "Philosophical and Critical Inquiries concerning Christianity."

† Bonnet died since the publication of the last edition.

I was no less ambitious of being known to his nephew de Saussure. Born in 1740, he was elected professor of philosophy in 1762, and has given to the public numerous specimens of his indefatigable industry, and of the versatility of his talents: he has made various remarks and experiments on microscopic animals, observations on electricity, on basaltic lavas and volcanic productions; on the physical geography of Italy. He has invented an instrument for measuring the degrees of magnetic force; and so much improved the electrometer of Gavallo, that it may be almost considered as a new instrument. But above all, his invention of the hairgrometer, for measuring the moisture of the atmosphere, has enabled him to make many theoretical and experimental researches that are detailed in *Essai sur l'Hygrometre*. And although a controversy subsists between him and de Luc, concerning the propriety of hair for this purpose, yet it cannot depreciate this invention, and new lights must be thrown on that subject by the opposition of two such able naturalists.

His *Voyages dans les Alpes*, of which two * volumes in quarto have made their appearance, treat of the physical geography of the Alps, the formation of mountains, the origin of the glaciers, and various phenomena of nature, which peculiarly distinguish Switzerland. Unlike some philosophers of the present age, who from their cabinet, and with no other knowledge of the earth than what is acquired by books, peremptorily and presumptuously decide on the theory of the globe; this indefatigable observer draws from repeated excursion and incessant experience a fund of facts, which may enable him to complete the great design and object of all his researches, that of establishing a more perfect theory of the earth.

The cabinet of Saussure is an object worthy of the traveller's curiosity; it contains a collection of foreign and Swiss butterflies, various petrifications and fossils, more particularly a large variety of basalts and volcanic productions, numerous specimens of granites and other primitive stones, collected during his various expeditions, and from parts which have been only visited by himself. Saussure has lately resigned the professorship of experimental philosophy, and is succeeded by my very worthy and ingenious friend M. Pictet Turretini, who has already distinguished himself by various publications, which elucidate several important branches of experimental philosophy †.

Paul Henry Mallet, born at Geneva in 1730, passed the earlier part of his life at Copenhagen as preceptor to the present King Christian the Sixth. His introduction to the history of Denmark, under the title of Northern Antiquities, proves him a profound and accurate antiquary, and his Histories of Hesse, Brunswick, and Denmark, shew him no less eminent as an historian. I should on this occasion be unmindful of the honour conferred on me, if I omitted to mention, that his latest work is a translation of my Travels into Poland, Russia, Sweden, and Denmark, to which he has added many remarks, and a Journey into Norway.

De Luc, reader to the Queen of Great Britain, and resident in England, is also a native of Geneva. He was born in 1727, and published in 1772 his celebrated work on the modification of the atmosphere, and on the theory of barometers and thermometers; a performance which marks a distinguished æra in the history of experimental philosophy, and which he continued under the title of *Idées sur la Météorologie*. But in his *Lettres Physiques et Morales, sur l'Histoire de la Terre et de l'Homme*, de Luc appears to singular advantage. In this learned performance, he displays a most extensive knowledge of na-

* The third and fourth have been since printed.

† Saussure died in 1799. Senebier, the ingenious author of *Histoire Littéraire de Genève*, has published an historical memoir on his life and writings.

ture, and applies it with great sagacity in forming a new theory of the earth, and in a happy accommodation of his hypothesis to the Mosaic account of the creation.

The cabinet of de Luc is not only remarkable for the number and rarity of many specimens; but more particularly claims the attention of the naturalist, as a systematic collection, tending to illustrate his theory of the globe. With this view it may be divided into three principal parts: the first contains petrifications and fossils; the second stones, and the third lavas and volcanic productions. The first part is arranged in such a manner, under three distinct heads, as may enable the naturalist, 1. To compare the petrifications of animal and vegetables with the same bodies, which are still known to exist in our parts of the globe; 2. To compare those petrifications of animals and vegetable with the same bodies which are known to exist in distant countries; 3. To consider the petrifications of those bodies which are no longer known to exist. The second part comprehends the stones under three points of view; 1. Those of the primitive mountains which contain no animal bodies; 2. Those of the secondary mountains which contain only marine bodies; 3. Those which contain terrestrial bodies. In the third part, the lavas and other volcanic productions are distinguished into, 1. Those from volcanos now in a burning state; 2. Those from extinct volcanos.

I am, &c.

LETTER LXIV.—*Government of Geneva in 1776.*

THE city and territory of Geneva were formerly united to the German empire, under the successors of Charlemagne; but as the power of the Emperors, feeble even in Germany, was still weaker in the frontier provinces, the Bishops of Geneva, like other great vassals of the empire, gradually acquired very considerable authority over the city and its domains, which the Emperor had no other means of counterbalancing than by increasing the liberties of the people. During these times of confusion, constant disputes subsisted between the Bishops and the Counts of the Genevois, who, although at their first institution considered as vassals of the Bishops, yet claimed a right to the exclusive administration of justice. The citizens took advantage of these quarrels, and, by siding occasionally with each party, obtained an extension of their privileges from both.

But the House of Savoy having purchased the Genevois, and succeeded to all the prerogatives of the Counts, with additional power; the Bishops and the people united to oppose encroachments, which were no less prejudicial to the authority of the one than to the liberties of the others. During this period, the respective pretensions of the Counts, Bishops, and citizens formed a government equally singular and complicated. The harmony, however, between the Bishops and citizens was at length broken by the artful management of the Counts of Savoy, who had the address to procure the episcopal see for their brothers, and even for their illegitimate children. By these methods their power in the city so much increased, that, towards the commencement of the sixteenth century, Charles the Third, Duke of Savoy, obtained an almost absolute authority over the citizens, and exercised it in an unjust and arbitrary manner. Hence arose perpetual struggles between the Duke and the citizens, and two parties were formed; the zealots for liberty were called *eldgenossen*, or confederates, while the partisans of the Duke were branded with the appellation of *mammelucs*, or slaves.

The treaty of alliance, which the town contracted with Bern and Friburgh, in 1526 may be considered as the true æra of its independence: for, the duke was soon after deprived.

deprived of his authority, the bishop driven from the city, a republic^{an} government established, and the reformation introduced. From this time, Charles and his successors waged incessant war against Geneva; but his efforts were rendered ineffectual by the intrepid bravery of the citizens, and the assistance of Bern.

In 1584 Geneva concluded a treaty of perpetual alliance with Zurich and Bern, by which it forms part of the Helvetic confederacy.

The last attempt of the House of Savoy against Geneva, was in 1602; when Charles Emanuel treacherously attacked the town during a profound peace. Two hundred soldiers scaled the walls in the night, while the inhabitants reposed in unsuspecting security; but being timely discovered, were repulsed by the desperate valour of a few citizens, who gloriously sacrificed their lives in defence of their country. As a tribute of public gratitude, these brave Genevians were buried with great pomp, and their names recorded on a sepulchral stone. In memory of this event, some of the scaling-ladders, by which the enemy entered the town, are preserved in the arsenal, and the petard, which was fastened to one of the gates, when the gunner was killed before it could be discharged. The war occasioned by this perfidy was concluded in the following year by a solemn treaty: since that period, uninterrupted peace has been maintained between the House of Savoy and Geneva; although the King of Sardinia did not till 1754, formally acknowledge the independence of the republic.

Peace was no sooner concluded with the House of Savoy, than the sparks of civil discord, so apt to kindle in popular governments, and which had been smothered by the apprehension of a foreign enemy, again burst forth. During the greater part of the last century to the present period, the history of Geneva contains little more than a narrative of contentions between the aristocratical and popular parties, and their struggles were occasionally exerted with so much animosity, as to threaten for a moment, a total revolution in the state; but, have been hitherto compromised without producing any fatal effects*.

The power of the Great Council in 1707, was restrained by an edict, decreeing that every five years a general council of the citizens and burghers should be summoned to deliberate upon the affairs of the republic. Agreeably to this law, a general assembly being convened in 1712; the very first act exerted by the people in their collective capacity, was the abolition of the above edict.

In consequence of this extraordinary repeal, the power of the aristocracy continued increasing till within these few years; when the citizens, by a singular conjunction of favourable circumstances, joined to an uncommon spirit of union and perseverance, procured several changes in the constitution of Geneva; by which the authority of the magistrates has been limited, and the rights of the people enlarged. Happy if they know where to stop; lest, by continuing to extend the bounds of their own privileges, and by too much restraining the power of the magistrates, they shake the foundation of civil government.

The present constitution of Geneva, may be considered as a mean between that of the aristocratical and popular cantons: more democratical than any of the former, as the sovereign and legislative authority reside in the general assembly of the citizens; more aristocratical than the latter, because the powers vested in the Great and Little Councils are very considerable.

* The reader will recollect that this letter was written in 1776, before the Revolution of 1782, which is related in the subsequent letter. See an excellent narrative of these intestine commotions, and of the gradual change from an aristocratical to a popular form of government, in Planta's History of the Helvetic Confederacy, chap. ix.

The members of the Senate, or Little Council of twenty-five, enjoy in their corporate capacity several prerogatives, almost equal to those possessed by the most aristocratical states. They nominate half the members of the Great Council, supply the principal magistrates from their own body, convoke the Great Council and the General Council, and previously deliberate upon every question laid before these councils: in other words, in them is lodged the power of proposing; consequently as every act must originate from them, no law can pass without their approbation. In this senate is vested also the chief executive power; the administration of the finances, and, to a certain degree, jurisdiction in civil and criminal causes. They nominate, to most of the smaller posts of government; and enjoy the same privilege of conferring the burghership. They compose, in conjunction with thirty-five members, chosen by themselves, the Secret Council, which never assembles but on their convocation, and only upon extraordinary occasions.

These prerogatives, however, are counterbalanced as well by the privileges of the Great Council, as by the franchises of the General Council. The privileges of the Great Council consist in choosing the members of the senate from their own body, in receiving appeals in all causes above a certain value, in pardoning criminals, in disposing of the most important charges of government, except those which are conferred by the General Council, and in approving or rejecting whatever is proposed by the Senate to be laid before the people.

The General Council, or assembly of the people, is composed of the citizens and burghers of the town; their number on an average amounts to about 1,500, but seldom more than 1200 meet at the same time; the remainder being either settled in foreign countries, or absent. I ought to have explained to you sooner, the distinction between *citizens* and *burghers*: the burghers are either the sons of citizens or burghers*, born out of Geneva, or have obtained the burghership by purchase; the citizens are the sons of citizens or burghers, born in the town. The burghers may be chosen into the council of two hundred, but the citizens alone can enter into the Senate, and possess the charges appropriated to that body.

The General Council meets twice a year, chooses the principal magistrates, approves or rejects the laws and regulations proposed by the councils, imposes taxes, contracts alliances, declares war or peace, and nominates half of the members in the Great Council. All questions are decided by the majority of voices; and each member delivers his vote without having the liberty of debating. The restriction is certainly reasonable: for, in a popular assembly, like this of Geneva, composed of citizens, the meanest of whom is well versed in the constitution of the commonwealth, and where the people in general have a strong propensity to enter into political discussions; if every voter was permitted to support and enforce his opinion by argument, there would be no end of debate, and the whole time would be consumed in petulant declamation.

But the principal check to the authority of the Senate, arises from the right of *re-election*, or the power of annually expelling four members from the Senate at the nomination of the four syndics, and from the privilege of *representation*. The right of re-election was obtained by an edict of the General Council in 1768, and is thus exercised. From eight Senators appointed by the Senate and approved by the Great Council, the General Council annually choose the four Syndics. But should the General Council reject the eight candidates, and all the other Senators who are successively presented to them, four members of the Great Council occupy their places.

* The children of those who are employed in foreign countries, in the service of the state, although born out of Geneva, are entitled to all the privileges of citizens.

With respect to the second restraint upon the power of the Senate, the right of *representation*; every citizen or burgher has the privilege of applying to the Senate in order to procure a new regulation, or of remonstrating against any act of the magistracy. These representations have, perhaps, proved one of the principal means of securing the liberties of the people from the encroachments of the two councils; the magistrates are obliged to give an explicit answer to these representations; for, if the first is not considered as satisfactory, a second remonstrance is presented. According to the nature and importance of the complaint, the representation is made by a greater or less number of citizens, and it has sometimes happened, that each remonstrance has been accompanied by several hundred, in different bodies.

The salaries of the magistrates are so inconsiderable, as not to offer any temptation of pecuniary emolument: a sense of honour, a spirit of pre-eminence, the desire of serving their country, together with that personal credit which is derived from an office in the administration, are the principal motives which actuate the candidates to solicit a share in the magistracy. Accordingly, the public posts are generally filled by men of the first abilities, and of the most respectable characters. The revenues of government, at the highest calculation, scarcely amount to 30,000 pounds a year; a sum, however, which, by a well-regulated œconomy, is more than sufficient to defray the current expences.

It is very remarkable that, in a republic so free as Geneva, and where the true principles of liberty are generally understood, there should be no precise code of penal law; for, although the form of the prosecution is settled, yet the trial of the criminal is private, and the punishment left to the decision of the magistrate. Nor are the franchises of the people ascertained with that accuracy which might be expected. Under Ademar Fabri, bishop of Geneva in the fourteenth century, a certain number of political regulations, both civil and criminal, together with several particular customs and franchises, were drawn up in form, and the bishop took an oath to observe them. These statutes, if they may be so called, were confirmed by Amadeus the Eighth, Duke of Savoy. This code, to which the people appeal in all cases of controversy, is compiled in a very inaccurate and confused manner, and the magistrates refuse to submit to its authority, because it was published before the independence of the republic was confirmed. The people have repeatedly demanded a code of municipal and penal laws, so express, as to prevent the arbitrary decision of the magistrate, and although such a code was ordered in 1738 and 1768, yet the compilation has been hitherto deferred.

The code of civil law is the most perfect part of the constitution; all matters concerning commerce being well-regulated, and private property securely guarded. It is unnecessary to trouble you with a particular detail of the sumptuary laws which nearly resemble those in most other states of Switzerland, where the restrictions of that kind are enforced. But there is one law, relating to bankrupts, too singularly severe not to be mentioned: if a member of either council becomes a bankrupt, he is immediately degraded, and from that moment rendered incapable of holding any post under government, until he has discharged all the just demands of his creditors; even his children are subjected to the same disgrace; and no citizen can exercise any public employment, while the debts of his father remain unpaid.

In this city, as in all the other principal towns of Switzerland, a public granary is established. Magazines of this kind, useful in all states, are more particularly necessary in so populous a place as Geneva, which if the neighbouring powers were to prohibit the exportation of corn, might be exposed to famine. The corn is dried by means of ingenious machines, and retailed to the inn-keepers and bakers; a considerable

ble profit accrues to government, and there is always in case of necessity, a sufficient quantity in reserve to support the inhabitants during a year and an half.

Geneva is strongly fortified on the side of Savoy, and a garrison constantly maintained; but these fortification and this garrison are only sufficient to guard them from any sudden attack, and could not be long defended against a regular siege. The great security of the republic consists in its alliance with the Swiss cantons, by means of Zurich and Bern: as it is the interest both of the Kings of France and Sardinia to be in friendship with the Swiss and to preserve the independence of Geneva; it derives its greatest security from a circumstance which, in some cases, would be the source of danger; namely, its vicinity to the dominions of such powerful neighbours*. Geneva is the only republic in Switzerland, which has no regular companies in any foreign service†. I am, &c.

LETTER LXVIII.—*Como.—Mendrisio.—Lake of Como.—Pliniana.—Fort of Fuentes.—Laghetto di Ghiavenna.—Entrance into the Country of the Grisons.*

DEAR SIR,

Ghiavenna, July 21, 1779.

SINCE I travelled over part of Switzerland, I have been desirous to make a tour through the remainder of that country, particularly to visit the Grisons; and I shall now take the opportunity of indulging my curiosity, and propose to myself the satisfaction of continuing to send you, on this as on the former occasion, my observations and remarks.

I quitted Milan last week, and proceeded through a gently rising country, well-wooded and fertile in corn and vines, to Como. This town being distinguished by the birth of Pliny the younger, the inhabitants have placed his statue in a niche on the outside of the church, with a Latin inscription bearing the date of 1499. I need not remind you, with how much rapture and enthusiasm Pliny mentions the delightful situation of his native town, and the romantic scenery of the environs, in those letters of which you have given to the public so accurate and elegant a translation.

Como is indeed most pleasantly situated, in a narrow vale, enclosed by hills, upon the southern extremity of a beautiful lake; it is surrounded by a wall flanked with picturesque towers, and backed by a conical eminence, on which stands the ruins of an ancient castle. The houses are neatly built of stone; and the cathedral is a handsome edifice of white marble, hewn from the neighbouring quarries. The inhabitants have established several manufactories of cotton and silk, and carry on some trade with the Grisons.

From Como I made an excursion to Mendrisio, one of the Italian bailliages belonging to the † twelve cantons of Switzerland. These bailliages formed part of the Milanese, and in 1512 were ceded to the cantons by Maximilian Sforza, who was raised to the ducal throne by the Swiss, after they had expelled the troops of Louis the Twelfth, and taken possession of the duchy. Francis the First, successor of Louis, having re-

* The conquest of Savoy by the French destroyed this equilibrium, and was the certain prelude to the subjugation of Geneva.

† The account (given in Letters 65, 66, and 67) of the revolutions of Geneva 1782, 1789, "a puddle in a storm," is omitted as little interesting at this period of grand revolutions.

‡ Appenzel is excluded from the co-regency because the cession was made in 1512, the year before that republic was admitted into the Helvetic confederacy. Beside Mendrisio and Balerna, the other Italian bailliages are Locarno, Lugano, and Val-Maggia Uri, Schweiß, and Unterwalden, possess three bailliages, Bellinzona, Riviera, and Val-Brenna, which were equally dismembered from the Milanese.

covered the Milanese and secured his conquest by the victory of Marignano, purchased the friendship of the Swiss by confirming their right to the ceded territory; a right which the subsequent dukes of Milan were too prudent to dispute.

Mendrisio and Balerna* is one of the smallest of these transalpine baillages: the bailiff or governor is appointed successively by each of the twelve cantons, and remains in office two years. He is supreme judge† in criminal affairs without appeal: a power too great to be entrusted to a stranger, commonly ignorant of the laws, and interested to increase his revenue. In civil causes an appeal lies to the syndicate of Switzerland. The inhabitants enjoy considerable privileges, civil, ecclesiastical, and commercial. The district is extremely fertile in vines, corn, and pasturage, and yields a great quantity of excellent silk.

Returning to Como, I embarked upon the lake; the banks near the town are richly wooded, and studded with country houses and small villages, which lie upon the gentle acclivities near the margin of the water. At first the lake is scarcely a quarter of a mile broad, but it widens near a neck of land upon which is situated the small village of Turnio. The neighbourhood of Turnio, and the districts bordering the lake of Como, supply, for the most part, those Italian emigrants who wander through Europe vending barometers and thermometers; of whom numbers annually resort to England.

After an hour's rowing we reached Pliniana, remarkable for a singular fountain, which is still to be seen in the same state as described by Pliny. Pliniana, a villa belonging to a Milanese nobleman, is constructed upon the edge of the water, in a most romantic situation, backed by rocks covered with trees and pasture. The master of the house received me with much civility and politeness, and kindly accompanied me to the fountain. It is a spring, which bursts from the rock close to the house, and falls in natural cascades into the lake. I examined some of the phænomena alluded to in the following description, and received the account of the others from the gentleman himself, who had repeatedly made them the subject of his observation. The spring ebbs and flows three times a day; it gradually rises, until it forms a considerable stream, and then as gradually subsides, till it becomes almost dry. I saw it in its flow, and measured the increase by placing stones at different distances, which were successively covered in a small space of time. This increase and decrease is regular, excepting in bad weather: in the late season, which has been extremely fair, the ebb and flow were remarkably uniform. The original passage, in which Pliny describes the ebb and flow of this spring, is written upon the wall of an adjoining apartment.

Fons oritur in monte, per saxa decurrit, excipitur cœnatiuncula manu factâ; ibi paululum retentus in Larium lacum decidit. Hujus mira natura: ter in die statis auctibus ac diminutionibus crescit, decrescitque. Cernitur id palam, et cum summâ voluptate deprehenditur: juxta recumbis, et vesceris, atque etiam ex ipso fonte (nam est frigidissimus) potas: interim ille certis dimensisque momentis vel subtrahitur vel adsurgit annulum; seu quid aliud ponis in sicco, alluitur sensim, ac novissimè aperitur; detegitur rursus paulatimque deseritur: si diutius observes utrumque iterum ac tertio videas ‡.

Having

* In the new division of Switzerland, Mendrisio and Balerna were included in the canton or department of Lugano.

† In case of capital punishment, he is obliged to consult the secretary, notary, and the other officers of the district; but as they have no vote, his power is supreme.

‡ *Plin. Epist. lib. iv. Ep. xxx.*—"There is a spring which rises in a neighbouring mountain, and running among the rocks is received into a little banquetting-room, from whence after the force of its current is a little restrained, it falls into the Larian lake. The nature of this spring is extremely surprising; it ebbs and

Having gratified my curiosity at Pliniana, I embarked, and continued to Clarice, where I passed the night. The weather, which has lately been uncommonly sultry, is suddenly changed, and this morning a violent thunder-storm overtook us upon the lake; the water being extremely agitated, we landed at a small village upon the western shore, in order to wait until the storm should subside. The navigation of these lakes, which are enclosed between the mountains, is occasionally dangerous, according to Virgil's description of the Benacus, or Lago di Guarda.

*Tu, Lari maxime, tuque
Fluviibus et fremitu affurgens, Benace, marino.*

The Lake of Como is about thirty-six miles in length, in general from two to three broad, and four at the widest part, where it is divided into two branches. The great branch leads directly to Como; the small branch, called the lake of Lecco, discharges the Adda, and communicates by means of that river and the canals * of the Adda and the Canale Vecchio, with Milan.

The borders are high hills covered with vines, Spanish chestnut, walnut, and almond trees, and dotted with numerous villages and small towns. The hills bounding the lake rise gradually higher and higher, from those which encircle Como to the crags which tower near its upper extremity.

The storm at length subsiding, I embarked, and proceeded to Bellano, whose streets are so narrow as scarcely to admit the smallest cart. It is situated at the foot of a lofty precipice, rent from top to bottom by a chasm, through which a furious torrent forces its way. A bridge is thrown across the chasm, from whence the spectator looks down with terror into a gulph scarcely inferior in depth to that at the Panten-Bruck †, in the canton of Glarus, and an aqueduct is conducted along the precipitous sides of the rock. I again embarked, and proceeded to Domasio, where I waited upon the governor; to obtain the permission of visiting the Fort of Fuentes: my request being readily complied with, I crossed the lake, accompanied by a soldier, and landed at Collico.

A little above Domasio, on both sides of the lake, begins the *malaria*, or unwholesome air; the borders are no longer abrupt hills but a flat swamp, formerly covered with water. The inhabitants are subject to intermitting fevers; on which account during the heats of summer, when the malignity of the atmosphere is at its height, the greater part quit the plain, and retire to the neighbouring mountains. I found Collico and its neighbourhood almost entirely deserted; the cottages were shut up; and had it not been for the appearance of a straggling man and woman, should have concluded this part of the country to have been uninhabited. After walking about two miles from Collico, we came to the bottom of the rock, upon which stands the Fort of Fuentes. But before we ascend, I shall detain you a moment with a short history of this fort, which at the beginning of the last century was so much celebrated in the annals of Europe.

and flows regularly three times a day. The increase and decrease is plainly visible, and very entertaining to observe. You sit down by the side of the fountain, and whilst you are taking a repast and drinking its water which is extremely cool, you see it gradually rise, and fall. If you place a ring, or any thing else at the bottom when it is dry, the stream reaches it by degrees till it is entirely covered, and then again gently retires from it; and if you wait you may see it thus advance and recede three times successively."

Melmoth's Translation.

* See Letter 88.

† See Letter 6.

One of the articles in a treaty between Francis Sforza, Duke of Milan, and the Grisons, expressly stipulating that no fort should be constructed in the district of *Piantedio*, was confirmed by the Spanish branch of the House of Austria, which succeeded Charles the Fifth in the possession of the Milanese. Notwithstanding this agreement, when the religious disputes, occasioned by the introduction of the reformed religion into the Valteline, created a jealousy between the House of Austria and the Grisons, the Count de Fuentes, governor of Milan, laid, in 1603, the foundation of the fort, which he called after his own name, and saw it completed in 1606. From this place situated in the *Piantedio*, he introduced troops into the Valteline, and supported the inhabitants in their hostilities against the Grisons. Henry the Fourth of France, alluding to the construction and situation of this fort upon the borders of Italy, and near the confines of the Grisons, used to say, *Il veut du même nœud ferrer la gorge de l'Italie et les pieds aux Grisons* *.

If you are not fatigued with this preliminary account, we will now mount to the fort, and take a view of its present state. It is built upon an insulated rock, about a mile and a half from the nearest ridge of mountains, and two miles from the lake, so that it completely commands the only great opening which leads into the Valteline, either from the Milanese or the Grisons; a situation of great importance, when the possession of the Valteline was an object of consequence to the House of Austria. The fortifications are a quarter of a mile in circumference, constructed with stone, and contain a few ruinous barracks for soldiers, and the governor's house, which is in a most wretched condition. The whole garrison consists of three soldiers, who at the expiration of three days, return to Domasio, and are relieved by an equal number: the only inhabitants are a peasant and his wife, who have resided there a year, and have been almost constantly afflicted with the ague. The plain below the rock being entirely marshy, and covered with rushes, exhales a pestilential effluvia, which infects the atmosphere, and occasions the unwholesomeness of the fort. The Spaniards were accustomed to style this place, from its peculiar situation, the *yoke* of the Grisons, while the Grisons, in allusion to its bad air, termed it with more propriety the *grave* of the Spaniards.

The view from the fort is remarkably fine and picturesque. On one side, the rich Valteline, watered by the turbulent Adda; on the other, the lakes of Como and Chiavenna, beautifully encircled with numerous towns and villages. The hills which skirt the Valteline and the lake of Como, present a variegated landscape of forests, cornfields, and pastures, finely contrasted, towards the Grisons, by the rugged Rhetian alps covered with eternal snow.

Having taken leave of the three soldiers, and bid adieu to the peasant and his wife, I descended into the plain: the soil is fertile, but being subject to frequent inundations, is not capable of constant cultivation. That part which lies between the fort and the lake is so marshy, that although the straight line to the place of embarkation scarcely exceeded two miles, yet I was obliged to make a circuit of five before I arrived. I passed a range of square stones which form the boundary between the Milanese and the country of the Grisons: on one side of each stone was inscribed *Stato di Milano*, on the other *Grigioni*: they were put up, as the date informed me, in 1763, the year in which the treaty, or the *capitulation* of Milan, was concluded between the Empress of Germany, as sovereign of Milan, and the Grisons. By this treaty the limits of the two states were finally settled; and several other subjects of dispute amicably adjusted. Having reached the Adda, which, for a short space, makes the line of separation between the Milanese and Grisons, I walked along its banks; its stream is muddy, and navigable

* With the same knot he binds the neck of Italy and the feet of the Grisons.

only by rafts. Most of the maps of the lake of Como are erroneous, in representing that lake and the *Laghetto* di Chiavenna as one great piece of water, and the Adda as flowing into the former; whereas the two lakes are distinct bodies, and the Adda joins a small stream which issues from the *Laghetto*, and thus united falls into the lake of Como.

I embarked near Dacio, the last village in the Milanese, at which place all boats laden with merchandise are obliged to pay a small duty. Soon afterwards I entered the lake of Chiavenna, which belongs to the Grisons. The views of this lake are extremely wild and magnificent; surrounded as it is with barren rocks, craggy, and rising into spires sprinkled with snow: the bases of the dreadful precipices are lost in the dead and overshadowed water, dangerous on account of its malignant vapours, and affording no asylum, scarcely a landing-place, to the crews of those frail boats caught unwarily in the violent storms to which it is subject. I landed at Riva which consists of a few scattered cottages and warehouses, and having procured some horses, proceeded to Chiavenna by moon-light. The villages were almost deserted, and the inhabitants withdrawn to the mountains. The people in general are so greatly alarmed at the unwholesome state of the air in this season, that the watermen who rowed me from Como, although exceedingly fatigued, went back to Domasio, and exerted all their eloquence to dissuade me from my first intention of remaining in the plain: overcome by their repeated importunities I pursued my journey to Chiavenna. Indeed no other proof of the tainted air is requisite than the aspect of the inhabitants; the few peasants whom I met in the villages, as well near the Fort of Fuentes as in the valley of Chiavenna, were mostly wan and livid. The narrow valley through which I passed from the lake to Chiavenna, is enclosed between the first and lowest chain of the Rhetian Alps; it is watered by the torrent Maira, and produces Turkish wheat, pasture, chestnuts and mulberry-trees, together with a great abundance of willows. The ascent is rapid to Chiavenna, which is built in a higher and more wholesome situation.

LETTER LXIX.—*Plurs.—Its Destruction in the last Century by a Fall of a Mountain.—Valley of Pregalia.*

July 25.

MY last letter left me at Chiavenna, of which town I defer sending you any description, as I propose returning there in my way to Coire. The morning after my arrival, I rode about four miles, to the spot formerly occupied by the town of Piura, or Plurs, which was totally overwhelmed by the fall of mount Conto. This terrible catastrophe happened on the 25th of August 1618.

Plurs was a large and flourishing town, subject, as well as Chiavenna, to the Grisons. Contemporary writers mention, that it contained three churches, many large houses, and a stone bridge over the Maira, and that its population amounted to at least 1500 inhabitants who carried on no inconsiderable commerce. The valley in which it was situated is very narrow, and the whole town was buried in one undistinguished ruin. A contemporary account relates, that the cloud of dust and rubbish was so great as to cover the heavens like smoke, and even to extend as far as Chiavenna; the inhabitants of which place, alarmed at this phenomenon, were still more terrified at the sudden disappearance of the Maira, (whose course was stopped by the fallen fragments of rock, and apprehensive that the torrent had undermined Chiavenna, precipitately fled in great numbers to the mountains.

I walked over the spot where Plurs was built: parts of the antient walls, and the ruins of a country house, which belonged to the Franchi, the richest family in the place, are the only remains of its former existence; and these would not be noticed by a passer. A peasant who has a cottage close to the ruins, pointed out to me every place as it had been explained to him by his grandfather. He shewed me where stood the churches and principal houses, the channel through which the river then flowed, and where the bridge was constructed. He informed me, that in digging, several dead bodies had been found; particularly the bones of a priest, covered with shreds of garments, which indicated that he was employed in divine service when the rock overwhelmed the town. Household utensils are frequently dug up; the other day several corpses were discovered, and on the finger bone of one were a silver and two gold rings. Vineyards, chefnut-trees, and houses cover the spot where this unfortunate town was once situated.

The valley in this part has an oval appearance, and is skirted by a beautiful grove of chefnut-trees; the surrounding mountains are steep and rugged, and from the top of mount Savonne, *l'acqua fragia*, a considerable torrent precipitates itself, at first in a full unbroken stream, and afterwards divides into three separate falls, highly ornamental to the beautiful scenery.

I next followed my guide to the house of a gentleman near Chiavenna, to see a drawing of Plurs before it was overwhelmed; his ancestors had large possessions, and were the richest family in the town. The master of the house shewed me the picture, and explained to me the situation of the different buildings. He then politely accompanied me through his grounds to a manufactory of stone-pots called *Lavezzi*, which are made near Chiavenna, and much used for kitchen utensils throughout these countries, and some parts of Italy. This manufacture is very antient: Pliny mentions the * stone under the denomination of *lapis Comensis*, because the pots were sent to Como, and there exported.

These utensils are made by the following process: the workmen hew from the quarry semicircular blocks of stone, from which, with an instrument resembling that used by turners, they hollow a vessel about a foot in diameter. From the remaining mass they frame another of inferior dimensions, and continue their operation till they have produced a series of semicircular pots, gradually decreasing to the size of a small basin. From Plurs I continued along the valley of Santa Croce, and entered the country of the Grisons at the small village of Casta Segna, in Pregalia.

At Bondo, which is a small village in the valley of Pregalia, Count de Salis, formerly British envoy to the Grisons, has constructed a large and commodious house entirely fitted up in the English taste. It is situated at the extremity of a small plain scarcely half a mile in length, and about four hundred paces broad, bounded on each side by a chain of the Rhetian Alps, whose sides are covered with forests intermixed with luxuriant pasture. The plain is enclosed by some rugged rocks, behind which others shoot to an enormous height, crowned with perpetual snow; this little plain produces excellent pasture, barley, rye, vegetables of all sorts, and some fruit-trees. Through it dashes the torrent Maira over broken fragments of rock.

I rambled about the valley of Pregalia and the neighbouring mountains; and observed the domestic oeconomy of the peasants. Their food is chiefly salt meat, rye

* *Lapis Ollaris*.—Pliny's *Lapis Comensis* is classed by Wallerius among the steatites, by Linnæus among the cakes. It is opaque, unctuous to the touch, and composed of mica and steatites. When first taken from the quarry it is easily cut and turned; on being exposed to the air it hardens, but will take no polish.

bread, milk, cheese, polenta, and chefnuts, which are so plentiful at this season of the year that they make a principal ingredient in all their meals: the most common methods of dressing them are to boil, and serve them up with crumbs of bread, or to grind them to a paste, and then heat them with milk. The peasants are well clothed. They manufacture linen and coarse cloth at home, every family having a loom, which is worked in the winter season; the finer cloth, which they wear only on Sundays and festivals, is procured from Germany.

The valley of Pregalia reaches from the Podesteria of Plurs to the confines of Upper Engadina, and contains about eighteen hundred inhabitants: it is a high jurisdiction in the league of God's House, and is divided into the two independent communities of *Sopra* and *Sotto Porta*; so denominated from a wall with an opening called *Porta*, through which the road passes, and which separates the valley into two equal parts. These two communities enjoy a democratical form of government: a short account of which will convey some idea of the mode in which the administration of affairs is carried on in these little states.

Each community has its general assembly, in which the sovereign power is vested; every male at the age of eighteen has a vote; in each of these assemblies the magistrates and representatives to the general diet are chosen by the majority of voices; instructions are given to the representatives, and all appeals from the diet decided in the last resort. For civil causes the two communities have separate tribunals, composed of the *Landamman*, who is president, and twelve assistants; and an appeal lies from one to the other. For criminal affairs there is one court of justice, composed of a *Podesta*, and an equal number of judges from each community. The *Podesta* is thus chosen: each community appoints two persons, who nominate nine others, and these nine choose two candidates, who draw lots for the office. The same person is not unfrequently nominated *Podesta* by both parties; and then it is decided by lot to which he belongs. This criminal court of justice is always held at Vico Soprano, in *Sopra Porta*. In all delinquencies the punishments are extraordinarily severe, and the remission or alleviation is entirely left to the judges, who generally take a commutation in fines; so that if the criminal is poor he undergoes the punishment, if rich, he redeems himself by money.

LETTER LXX.—Description of the Marmot.

THE marmot is extremely common in the mountains of Switzerland, and particularly in this part of the Grisons; and, as many erroneous accounts of this sagacious little animal have been given, I shall send you an extract, selected from a description written in the German tongue by Dr. Girtaner*.

The marmot inhabits the highest and most inaccessible mountains, prefers the narrow valleys, and particularly the western or southern aspect, as the warmest, and avoids moist places. After sleeping during winter, he issues from his hole at the opening of spring, and descends to the lower regions, where vegetation is forward. In summer he again ascends the rocky heights, and frequents solitary caverns. He feeds upon herbs and roots, and particularly on the alpine plantain, mountain spingel, alpine lady's mantle, mountain sorrel, alpine toad-flux, alpine trefoil, and alpine starwort †; when

A French translation of this account is given in Rozier's Journal for 1786.

Plantago alpina, *Phellandrium mutellina*, *Alchemilla alpina*, *Rumex digynus*, *Antirrhinum alpinum*, *Trifolium* ~~um~~, *after alpinus*.

tame, he eats almost every thing except flesh. On drinking, he raises up his head like fowls at every sip, looking on each side with timorous watchfulness; he drinks but little, and is extremely fond of butter and milk.

At break of day the old marmots come out of their holes and feed; afterwards they bring out their young ones, who scamper on all sides, chase each other, sit on their hind feet, and remain in that posture, facing the sun, with an air expressive of satisfaction. They are particularly fond of warmth, and when they think themselves secure will bask in the sun for several hours. Before they collect grass either for food or for their winter habitations, they form themselves into a circle, sitting on their hind legs, and reconnoitre on all sides; on the least alarm, the first gives instantly a shrill cry, which is communicated from one to the other, and they escape without repeating the noise. The chaffeurs, by imitating these successive whistlings, approach so near as to come within shot of them.

The marmot has a quick eye, and discovers the enemy at a considerable distance. He never does the least injury to any animal, and flies when he is pursued. In fact, when apprehensive of being followed, whole families quit their dwellings, and wander from mountain to mountain; but when flight is impossible, they defend themselves with spirit against men and dogs, and attack all who approach them with their teeth and claws.

They live together in societies. They have both summer and winter dwellings, which are easily distinguished. The former remain open during the whole year; whereas the latter are closed at the end of September. In the summer dwellings is found dung in great abundance, but no hay; on the contrary, the winter habitations never contain any dung, but much hay; near the latter is perceived a more considerable quantity of earth, which annually increases according to the size of the dwelling, and the augmentation of the family.

In the formation of their dwellings they scoop out the earth with great dexterity and expedition; a small part they throw away, and by beating the remainder close, render the passage very compact and solid. The opening being scarcely more than six or seven inches in diameter, is just large enough to admit the animal. The interior is from eight to twenty feet in length; it consists of a passage, which, at about five or six feet from the entrance, divides into two branches; the one leading to a small cavity, the other to the chamber in which they repose. The passage and the two branches are always carried in a straight line, unless the intervention of a rock, or any other impediment, obliges them to take another direction. The chamber is round or oval, arched at top, and resembles the shape of an oven; it is from three to seven feet in diameter, and is strewed with hay, in which the marmots lie in a dormant state during the whole winter.

On retiring to this dwelling about the beginning of October, they carefully close the entrance so as to exclude all air, with a cement of earth mixed with stones and hay. On opening this chamber three weeks after it is closed, the marmots are discovered lying on the hay close to each other, and rolled up like hedge hogs, without the least appearance of life. Usually from five to sixteen are found together; sometimes, but rarely, two families occupy the same dwelling, and occasionally, but very seldom, one marmot has been discovered alone. If exposed to warmth they awaken. The tame marmots do not sleep during winter; but on the approach of that season, excited by instinct, collect materials towards constructing their dwellings. The wild marmots occupy their winter habitations in October, and quit it towards the latter end of March or the beginning of April. In removing the cement which closes the opening they do not push it

outwards, but draw it inwards, and probably convey the materials, which would block up the principal passage, into the small cavity.

They copulate soon after coming out : in June or July young ones have been observed, about the size of rats.

It is probable that they do not eat during their torpid state ; for the same quantity of hay is observed both in spring and autumn in their winter habitations, and those which have been dug out in that season are thin and perfectly empty. The flesh of the marmot is eatable, and its skin is used for furs.

LETTER LXXI.—*Passage of the Malloggia.—Lake of Siglio.—Selva Piana and St. Morizzo.—Expedition to the Julian Columns.—Bivio.*

St. Morizzo, July 31.

THE road through Pregalia to Coire admits carriages, but is very indifferently paved. I passed through the village Promontogno, then through the Porta to Stampa, Vicosoprano, Borgo Nuovo, and Causacia. The houses in this valley are of stone, plastered and white-washed ; are not scattered, as in the small cantons of Switzerland, but every half mile a cluster of habitations presents itself.

Beyond Bondo the country produces no more chestnut-trees, but principally larch and firs ; it yields grass, barley, and rye. Near Causacia is the barren and lofty mountain of Set. I here quitted the high road which turns towards Coire, and about a mile and a half further where the valley terminates, I began to mount a very steep ascent, by the side of the torrent Maira, which rushes amidst a forest of firs ; it descends from the glacier of the Malin, a ridge of alps separating the Valteline from the country of the Grisons. A little further I reached the top of the Malloggia, and observed the Orlegna, a glistening torrent, falling from the Lungin mountain, and forming the remotest source of the Inn. The Malloggia is the point of partition, dividing the waters which run towards the Black Sea, from those which flow into the Adriatic. The tops of the circumjacent mountains are mostly rugged, and covered with snow ; lower down they are enlivened with underwood, firs, and pasture.

I stopped at a single house, a kind of inn, where travellers are accommodated. The landlord and his family speak an Italian jargon similar to the Milanese dialect, which is common in Pregalia. The next place is Siglio in Upper Engadina, where Romansh is the general tongue. On enquiring whether it was similar to the Italian spoken in Pregalia, the landlord informed me that the two languages are totally different ; and the servant assured me, that she could scarcely comprehend a word which was uttered by the inhabitants of Siglio. From Malloggia I descended, crossed the Orlegna, and continued along the banks of the lake of Siglio ; the way was bad and craggy until I came to the confines of Engadina, where an excellent road commenced.

The small lake of Siglio is about five miles in circumference, and finely situated between high perpendicular rocks ; it takes its name from Siglio, which we left at a little distance on our right. I crossed the Inn soon after it issues from the lake, and pursued my course over the dry bed of the torrent Fait, which formerly flowed into the Inn, but has lately changed its course, and now falls into the lake of Selva Piana. These torrents often shift their channels ; and I could observe evident traces, that some of them had, at former periods, watered the small plain between the lakes of Siglio and Selva Piana. The village of that name stands pleasantly upon a small rising ground, and the lake, though much smaller than that of Siglio, far surpasses it in the beauty of its banks,

which are fringed with hanging groves of fir and larch. From this lake the Inn issues in a larger stream, falls again at a little distance into the lake of St. Morezzo, from whence it dashes through a deep rocky channel into the plain of Celerina, where it flows in a more tranquil current. These little plains, or valleys, are broader and longer than that of Bondo, and produce as much grass, which is now mowing.

At Selva Piana, I attempted to converse with some of the inhabitants, but could scarcely comprehend them; I have been endeavouring also to talk with the natives of this place. Many speak Italian, as it is much frequented by strangers for the sake of the waters; but the greater part understand nothing but Romansh. This morning being Sunday I attended divine service; the clergyman preached in the language of the country, and I could comprehend little more than that the text was in the 22d chapter of St. Luke. The sermon, which is the principal part of the service, was about an hour long; the prayers were short; the girls sung psalms; some of them had delightful voices, and performed with great taste and propriety, a proof of their neighbourhood to Italy.

St. Morezzo, or, as it is most commonly called, St. Maurice, stands agreeably upon the side of a hill, overlooking a small lake which lies in the bosom of the mountains, and is bounded by rising banks studded with wood and pasture. This village is remarkable for a plentiful spring of mineral water, much esteemed for its efficacy in curing several disorders; it issues from the ground about the distance of half a mile on the other side of the river Inn, is a very plentiful source, and strongly impregnated with vitriol. On plunging Reaumer's thermometer into the source it sunk from 12 to 4 $\frac{1}{2}$. I was informed that, from repeated observations, the thermometer varied according to the greater or less degree of rain; but upon an average the mercury generally stood between 4 and 7.

I am lodged in one of the boarding-houses, which abound in this place for the accommodation of persons who drink the waters. The company at table consist at present of only two merchants of Appenzel; who are established at Genoa, and a clergyman of Lower Engadina. As I soon discovered the clergyman to be an intelligent man, I discoursed with him upon the state of religion among the reformed part of the Grisons, and particularly relating to the *Pietists*, a sect which has lately made great progress in these parts. From the account given by the clergyman, who evidently leaned towards their opinions, these Pietists appear similar to our Methodists: they exalt faith above good works, affect to be uncommonly rigid and pious, condemn all diversions, card-playing, and assemblies, as criminal; frequently despair of salvation, fancy visions, enjoy supernatural inward illuminations, and employ so much time in prayer as to neglect their ordinary business. The clergymen of this sect are for the most part ignorant and superficial, are vehemently vociferous in the pulpit, thunder out reprobation, and expatiate upon justification, without explaining the methods of avoiding the one, and of obtaining the other.

These preachers, notwithstanding their affectation of a total indifference to worldly matters, do not confine their views merely to theological speculations, but pay a considerable degree of attention to political affairs; and as by means of their authority in religious concerns they possess a considerable influence over the votes of their parishioners, they are on that account much caressed and countenanced by several leading persons among the Grisons.

The dress of the women is singular, and not unbecoming; it consists of a black or blue jacket with red sleeves, striped blue and white petticoats, a small black velvet cap trimmed with gold or silver lace, with a black or white lace border hanging over the forehead.

From

From St. Morezzo I made an excursion to the Julian Columns, of which Scheuzer has given a description and an engraving in his *Itinera Alpina*: he supposes them to have been erected by Julius Cæsar, in order to mark the limits of his conquests in these parts, and asserts that *Ne plus ultra*, and *Omitto Rhetos Indomitos*, are inscribed upon them.

After passing Selva Piana, I turned up a path which leads to the Julian Alps, continued about two hours over rugged rocks, and reached the Julian Columns, if they deserve so dignified an appellation. They are of a circular shape, somewhat similar to the Roman mile-stones, placed at the distance of about forty feet from each other. Their height above the ground is four feet, and they seem to be buried a foot, or scarcely so much; their circumference is about five feet. They have neither pedestals nor capitals, and are flattish at top, with a small round hole in the middle four inches diameter and six deep; they were formed by art but in the rudest manner, and do not contain the smallest traces of any inscription. We have no reason therefore to conclude, that these pillars were erected by Julius Cæsar to ascertain the boundary of his conquests, or at least we have no proofs upon which we can depend for the truth of this popular story. I do not however regret that I made the excursion; for my curiosity, disappointed in a view of the pillars, has been gratified in visiting these wild and romantic alps.

The Julian Alps produce much pasture, but no wood, which is a proof of their great elevation. Near the stones just described is a piece of water called the Julian Lake; it is supplied from a glacier on a superincumbent mountain, from which a torrent descends to the lake of Selva Piana, and may be considered as a source of the Inn.

I soon afterwards stopped at a cottage, the only house in the whole extent of these alps; it is not occupied but during summer; the tenants every night house the cattle that graze upon these mountains, and make large quantities of butter and cheese. Having taken a refreshing bowl of thick cream, I began my descent, and observed numerous small streams; some issuing from the rocks, others falling from the glaciers, and forming the first sources of the Little Rhine. The path was so steep and craggy that I gave my horse to the guide, and preferred walking; about five miles from the pillars I arrived at Bevio, a small village upon the Little Rhine, in the high road leading to Coire. Every one being employed in hay-maying, I could not gain admittance into the inn; some friars, however, offered me their house and dinner, and prevented me from returning, as I had proposed, to the cottage upon the Julian Alps.

On questioning these friars concerning the constitution of the republic of Bevio, they informed me that Bevio and Valmorara form one community, governed by eleven magistrates, though the number of voters who appoint these magistrates scarcely exceeds forty; the chief is called *Ministrale*, and is confirmed every year; for which act of politeness each voter annually receives a florin. About one-third of the merchandise from Como to Coire passes by Bevio, but the greater part is sent by Splügen. After dinner I returned over the Julian Alps to St. Morezzo.

LETTER LXXII.—Upper Engadina.—Bever.—Zutz.—Scampf.

Zutz, August 2.

THE ride from St. Morezzo to Zutz, through Celerina, Samada, Ponto, and Madulein, is extremely pleasant. These villages lie chiefly upon the sides of the mountains gently rising above a plain, which in some parts is a mile broad, in others so narrow as to be entirely occupied by the Inn. The valley is enclosed on both sides by a chain of alps, covered for a considerable height with woods interspersed with pasture, and capped

with snow. The river, which here is free from cataracts, is joined by innumerable torrents that rush down the sides of the rocks, or burst from the ground.

The Inn, during its progress in this part, is very unlike most of the rivers which I traced in my former tour. The Rhone, the Reufs, and the Aar, for instance, fall, near their sources, in a continual cataract, over fragments of rock, and through the most wild and uninhabited tracts of country; while this river directs its course through a cultivated and populous district, in an equable unbroken stream. The country is picturesque, and its beauties of a milder cast than usual in these alpine regions. The burghs, or villages, are pleasantly dotted about the plain, at the distance of a mile from each other; each village consists of a cluster of fifty or a hundred houses of stone, plastered and white-washed, and in such excellent repair as to appear newly constructed. The spirit of neatness indeed is so general in Upper Engadina, that I scarcely observed one bad house through the whole district, and even the barns are as good as the cottages in many countries.

As I was riding through Bever the clergyman, who was smoking his pipe at his door, stopped me with a compliment, and invited me to see his library; I alighted accordingly and looked over his collection. He shewed me some English books, and many in the Romanish language, particularly the * Bible printed at Coire, which is dedicated to George the Second when Prince of Wales. He also obligingly accompanied me a little way; and about half a mile from Bever pointed out a single house called Alles Angnes, where the deputies of the two communities of Upper Engadina assemble for the purpose of deciding, in the last resort, appeals in civil causes. A little further he desired me to observe a small spring, which falls into the Inn a few paces from its source; it is called Fontana Merla, and would not be worthy of notice, did it not separate the two communities of Upper Engadina. Soon afterwards I took leave of the clergyman, mounted my horse, and proceed to Zutz. I passed the Inn several times over bridges of single arches, which have a very striking appearance; they were constructed by scholars of the famous Grubenman †, and in the same style of architecture as the bridges of Schaffhausen and Wettingen, excepting that they are not covered.

Zutz, although not the largest, is esteemed the principal place of Upper Engadina, because it contains the criminal court of justice. The Landamman of Sotto Fontana Merla, who always presides in this court, is chosen every other turn from the family of Planta, established at Zutz: this peculiar privilege, which gives to that family no inconsiderable influence in the political affairs of this country was formerly granted by a Bishop of Coirè, who was uncle to one of the Plantas. On my arrival at Zutz I waited upon M. Planta, formerly envoy from the republic of the Grisons to that of Venice; he was appointed to that embassy in order to renew the ancient league which had been interrupted by the last treaty of 1763, between the Empress of Germany and the Grisons; and on which occasion the Venetians were so much enraged as to expel the Grisons from their territories. This negociation however, though conducted with great ability, was ineffectual. M. Planta received me with great politeness and cordiality, and invited me to supper, and, as the evening was not set in, he accompanied me to what is called the camp of Drusus, which I was desirous of examining.

You recollect the campaign which Drusus, the adopted son of Augustus, and brother of Tiberius, carried on against the fierce inhabitants of these mountainous countries; and to which Horace, in compliment to his patron, has alluded:

* This Bible is in the dialect of the Grey League.

† See Vol. I. Lett. 2. and 13.

*Videre Rheti bella sub Alpibus
Drusum gerentem et Vindelici;*

— *arces*

*Alpibus impositas tremendas
Dejecit acer plus vice simplici.*

This campaign of Drusus against the Rhetians was attended with great success, and he defeated the barbarous inhabitants, before deemed unconquerable, (*indomitosque Rhetos*) with great slaughter. The supposed remains of his camp consist of several deep pits, and a mound of earth about thirty feet high and sixty paces in circumference. These works did not appear to me to be of Roman construction; being probably a rude fortification thrown up during the turbulent times, when the barons of the country were engaged in perpetual acts of hostility: a desire to render them venerable by the remoteness of their origin, and the splendor of the Roman name, seems the only cause of their being attributed to Drusus. Having satisfied my curiosity I returned to Zutz, and passed an agreeable evening with M. Planta.

Scampf, August 3.

THE little burghs in these parts are situated at such small distances from each other, that my daily journeys are scarcely so much as a morning's walk, and I am so delighted with the country and its inhabitants, that I could willingly take up my abode here for some time longer. On my arrival at Scampf I carried a letter of recommendation to M. Perini; who introduced me to M. Aporta, the clergyman of the place, a native of Lower Engadina, of the ancient and illustrious family of Aporta. He studied * some time at Deprezin in Hungary; but returning to his native country, was soon afterwards appointed pastor of Scampf. His income is small, scarcely amounting to £20† per annum, and yet his living is esteemed one of the best in Engadina; with this moderate revenue he maintains a wife and large family. His chief work, which is a sufficient proof of his extensive knowledge and indefatigable industry, is the History of the Reformation among the Grisons, in two volumes quarto. It is written in Latin, and compiled with great impartiality and exactness; the style is classical and perspicuous. This excellent publication is not merely confined to ecclesiastical transactions; for as the affairs of religion are intimately blended with political events, the latter make no inconsiderable figure in every History of the Reformation. The reader will find in M. Aporta's performance a minute and faithful account of the animosities between France and Spain, in relation to the Grisons, of the rebellion in the Valteline, of the massacre of the Protestants, and of the subsequent war carried on under the semblance of religion. This interesting narrative comprehends almost all the important events in the history of the Grisons, from the beginning of the reformation to the peace of the Valteline.

I look up with reverence to this learned author, for his unwearied industry in completing so laborious a work with little encouragement, and under all the disadvantages which arise from a difficulty of procuring books, and straitened circumstances. All that he ever obtained, except fame, was a present of twenty-five guineas, which enabled him to bear his expences to Zurich, for the purpose of collecting materials from the manuscripts in the public library. The work, printed at Coire, at the expence of the typographical society, has never produced any emolument to the author. This respectable

* He received his education, I believe, in the University of Basle.

† Considering the different modes of living, and different value of money, this sum is perhaps equivalent to about £60 in England.

divine, beside a critical knowledge of the learned languages, understands and speaks Italian and German, is able to read French, and has some acquaintance with the Hungarian and Wallachian tongues. During the little time I passed in his company, I had frequent occasion to be surprised at his profound erudition and comprehensive abilities, and I am particularly indebted to him for much exact information concerning the Romanish tongue, the general purport of which I shall transmit to you in a future letter *.

Upper Engadina is divided into two communities, called Sotto and Sopra Fontana Merla, from their situation above or below that spring. They have both the same court of criminal justice, which is held at Zutz, and consists of the Landamman of Sotto, who is president, and sixteen jurymen, called Trouadors, taken equally from each district. Justice is more equitably administered in this court than in any other throughout the Grisons, excepting at Coire; a circumstance which arises from the following causes. The code of criminal laws was composed in 1563 by Juvalta who had been envoy from the republic of the Grisons to Venice, and had there imbibed more enlarged conceptions of jurisprudence, than at that time prevailed among his rude countrymen. This excellent code was drawn up in Latin, and in 1644 was translated into Romanish. The fines enjoined for criminal offences do not belong to the judges, but the community; the expences of the process are defrayed, and a salary is allowed to the judges from the public fund: the judges by these means being not so much interested to convict the prisoner, are not so ready to employ the horrid expedient of torture for the purpose of enforcing confession.

Another cause of the equity observable in this court is the mode of electing the judges: they are not, as in many other communities, chosen by the people collectively assembled, but by sixteen deputies, who represent the several districts. By these means the election is carried on with more prudence, and with a greater attention to the qualifications of the judges than can be expected amidst the confusion of a popular meeting.

The same deputies choose all the civil magistrates by a majority of voices, and finally decide all legislative and political questions, which have before been separately proposed to their several districts. Their constituents have the power (which they frequently exercise) of peremptorily directing their vote. It is, however, no inconsiderable alleviation of the mischiefs frequently attendant on governments purely democratical, that the whole body of the populace on no occasion assemble upon one spot; but discuss matters in detached parties, and send the result of their deliberations by their representatives.

Upper Engadina is a very beautiful valley, yet, on account of its elevation, produces nothing but pasture and a small quantity of rye and barley. The winter sets in early and ends late, during which time sledges are the ordinary vehicles. The air, even at the present season, is cold and piercing, and the corn in the midst of summer is occasionally much damaged by the hoar-frosts; hence the Italian proverb,

Engadina Terra Fina, se non fosse la pruina †.

The district not yielding sufficient productions for the sustenance of the inhabitants, many migrate into foreign countries; the gentry in the military line, as is common in Switzerland, others in the capacity of mechanics, tradesmen, and merchants, their favourite occupation is to keep coffee-houses or pastry-cook shops in different parts of Italy and France. Generally two persons enter into partnership to carry on the same trade; one remains in his own country, the other attends the business for a year, when he is relieved by his partner, and returns to his family for the same term. These part-

* Letter 90.

† Engadina would be a fine country if there was no hoar-frost.

ners are commonly as faithful as industrious; they annually bring considerable sums of money into this district, which is esteemed the richest among the Grisons.

Many of the inhabitants feed numerous herds of cattle in the summer months upon the Upper Alps, and export large quantities of cheese and butter; in autumn, when pasture begins to be scarce, they send great part of the cattle for sale into the Tyrol. They live much upon salted meat, particularly in winter, on account of the dearth of fodder. The bread of the country is mostly brownish; it is baked in little round cakes, only two or three times in the year, and becomes so hard that it is sometimes broken with the hatchet; it is not an unpleasant food with cheese or butter, which are very common. The principal part of the butter is made on the Alps; it is afterwards melted, put into bottles, and frequently continues good during the whole year. The wine of the Valteline is much esteemed, and is by no means scarce in this country; it bears keeping to a very considerable age; I have tasted some wine from the cask of a very fine flavour, about fifty years old, although it grows sour in the space of three years in the warm climate of the Valteline.

The people are, for the most part, remarkably polite and well-bred; they bow to me as I pass with great civility, and will perform any kind of offices in the readiest and most obliging manner. I am indeed no less delighted with the politeness and hospitality of the inhabitants, than with the romantic scenery of the country. Although many of the natives spend a great portion of their time in foreign parts, they seldom lose their attachment to Engadina; and return with great eagerness to their family and friends after their occasional absence.

The inhabitants of Upper Engadina are computed at about four thousand, and out of these, four or five hundred, upon an average, earn their livelihood in foreign countries.

LETTER LXXIII.—*Lower Engadina.—Cernetz.—Huldric.—Campel.—Trasp.—Remus.—Entrance into the Tyrol.—Santa Maria.*

Cernetz, August 4.

THE valley of Upper Engadina, from Celerina to a few miles beyond Scampf, is nearly level; it is inclosed between two ridges of mountains, which are most elevated at Celerina, and gradually diminish in height and ruggedness. About Zutz and Scampf is the finest part of the valley: it there produces some rye and barley, and the mountains are clothed with verdure to their very summits. Beyond Scampf the plain ends; and the river Inn, which had hitherto winded in a gentle course, is contracted into a narrow channel, and falls in continual cataracts. The road ascends and descends along the sides of the mountains, and the country is thickly overspread with woods of fir and pines.

I passed through several villages similar to those described in the preceding letter, and near Brail I crossed a small bridge thrown over a precipice overlooking a foaming cataract: it is called in the language of the country *Pont Alta*, or High Bridge, and forms the separation between Upper and Lower Engadina. Even if the limits of the two districts had not been thus marked out, the sudden alteration of the road, for the worse, would have led me to suspect that I had quitted Upper Engadina. The road from the lake of Siglio to Pont Alta is like our turnpikes in England, and sufficiently broad to contain two or three carriages abreast; no common circumstance in these mountainous regions. It has been lately made, in consequence of a proposal from the House of Austria, at the late treaty of Milan, to improve the roads leading through the

Pregalia and the two Engadinas, that the merchandise to and from Pregalia might be transported this way through the Tyrol, instead of being carried, as it is at present, through Coire.

The House of Austria offered to defray the whole expence of this undertaking. The inhabitants of Upper Engadina declining, with a spirit of disinterestedness rarely to be found in democratical states, the offer of indemnification, carried the plan into execution within their own territories; but the intrigues of the citizens of Coire, whose interest would have suffered by the new arrangement, together with an inveterate persuasion, that good roads would render the country too accessible to the neighbouring powers, prevented the people of Pregalia and Lower Engadina from co-operating in this useful project; accordingly that part of this road which runs through their districts remains in its original state.

After crossing Pont Alta, I passed along a wild and almost uninhabited tract of forest until I reached Cernetz, where I am now comfortably lodged in the house of M. Planta. That gentleman is at his government of Morbegno, in the Valteline; but having accidentally met me at Chiavenna, he kindly gave me a letter of recommendation to his uncle, who would not permit me to continue at the inn.

Cernetz is situated in a small rich plain, bounded by two ridges of mountains converging at both extremities: it produces wheat, barley, rye, flax, and abundance of rich pasture. I feel an essential difference between the climate of this little plain and that of Upper Engadina; it is much warmer, and has all its natural productions much farther advanced towards maturity. Large quantities of wood are felled upon these mountains, and floated down the Inn as far as Inspruck. In this plain the Inn is joined by the large torrent Spælg, that descends from the mountains of Bormio; by the side of this torrent, and at the extremity of a narrow pass leading to Bormio and Munster, I observed a square tower, which in 1624 the Marquis de Cœuvres garrisoned with a body of French and Grison troops, in order to check the Austrian army posted at Munster. The pass is still further fortified by a stone wall, carried from the foot of an inaccessible rock to the tower, and from thence to the torrent.

The Marquis de Cœuvres, to whom the guard of this important pass was committed, was son of the Marquis d'Etrées; he was bred up to the church, and created Bishop of Noyon; but upon the death of his elder brother renounced the ecclesiastical line, and embraced the profession of arms. He distinguished himself in several campaigns under Henry the Fourth, and was afterwards employed in the reign of Louis the Thirteenth as ambassador to Turin and Rome. In 1624 he was appointed ambassador extraordinary to the Republic of the Grisons, and commander in chief of an army of French and Swiss troops, sent to the assistance of the Grisons during the war of the Valteline. He penetrated through Coire into Lower Engadina, and seized, without delay, this important pass; by which manœuvre he secured the only avenue leading to Bormio, the reduction of which place was followed by the submission of the Valteline. For these important services the Marquis, on his return to France, was created Duc d'Etrées, and raised to the highest honours. He died in 1670, in the hundred and second year of his age.

I employed the greater part of this morning in making extracts from Campel's account of the Grisons, esteemed the best topographical and political history of this country yet extant. It is written in Latin, has never been printed, and is very rarely met with. I had the good fortune to find a copy in the library of Count Firmjan at Milan, who, with that readiness to oblige which peculiarly distinguished his character, permitted me to consult it. My stay at Milan being very short, and employed in other researches, I had

had not made so good an use of this indulgence as I could have wished ; and as I have now found the same work in M. Planta's library, I embrace this opportunity of perusing the most interesting parts, which has given me great insight into the geography, history, and government of this country.

Huldric Campel, the author of this valuable work, was born in the beginning of the sixteenth century at Sufs, in Lower Engadina, and made an uncommon proficiency in every species of literature. He was one of the earliest reformers in this country, and became by his active zeal, as well as by his extensive erudition, the chief instrument in spreading the reformation through this district. An event of small consequence, which happened in his family, gave rise to the sudden and wide dissemination of the new doctrines, and ended in the abolition of the Roman Catholic religion.

Being absent, in 1537, upon the prosecution of his studies, his wife was delivered of a daughter, who seemed upon the point of expiring. Gaspar Campel, father of Huldric, a man strongly attached to the reformed doctrines, refused to have the child christened by the popish priest of the parish, and would not suffer even the midwives to sprinkle it according to the custom of the Romish church, with holy water ; and, as there was no reformed minister at hand, performed the ceremony of baptism himself. The Roman Catholics of Sufs, in abhorrence of this act, assembled in a tumultuous manner, and attacked Gaspar with such fury, that he narrowly escaped assassination. His enemies then brought an accusation against him before the diet, which at first referred the cause to arbitration ; but no satisfactory decision being obtained, a public conference was ordered to be held in the church of Sufs, before deputies from the several communities, upon the following question, " Whether, if a child is born and likely to die before a priest can be sent for, the baptism performed by a layman was preferable to that by midwives ? "

This ridiculous inquiry led to discussions of great moment ; the reformed ministers refused to acknowledge any authority but the Holy Scriptures ; while the Catholics considered the writings of the fathers and decrees of the church as infallible. Each party thus regarding every point through a different medium, could not be induced to admit the arguments of its antagonist, and the dispute lasted seven days with little prospect of a satisfactory conclusion. Fortunately, however, an accommodation was summarily adjusted by the moderation of the deputies ; they decided that, in cases of extreme necessity, where no priest was present, either a layman or the midwives might baptise, and that the layman was preferable to the midwife : but what was of the greatest consequence, they decreed that, in regard to the other controverted points of faith debated in the course of the argument, every person might safely hold that doctrine, which from full conviction he was persuaded to be the word of God.

This conference was productive of the most beneficial effects ; for the people, who flocked thither in great numbers, were taught to consider the Holy Scriptures as the only authority in controverted questions. The tendency of this maxim is obvious ; in fact, it produced such rapid effects that, within the space of twenty years, the Reformation was completely established throughout * Engadina.

To return to Huldric Campel ; he not only approved his father's conduct in the affair of his daughter's baptism, but became a zealous proselyte to the new doctrines. Having entered into holy orders, he undertook the care of a reformed church in the valley of Pretigau, where he was indefatigable in the performance of his duty, and the propagation of the Protestant religion. In 1550 he was drawn to Sufs by the friends of the Reformation, as a person the most qualified to combat the Roman Catholic church.

* Excepting the small village of Samun.

His labours were attended with such success, that, a short time after his appearance in his native place, mass was abolished, and the Reformation publicly adopted. Nor was Suls the sole theatre of his exertions; at Cernetz, and several other places, the persuasion of his eloquence, and the force of his arguments, gained numerous converts.

He passed the decline of his life at Schlins, where he was pastor, and persevered to the last period of his existence in disseminating and defending the doctrine of the reformed churches, as ably with his eloquence as he recommended them by his example. Amidst the occupation of religious duties, he found leisure to continue his history of the Grisons to 1580. He died the following * year at Schlins in an extreme old age, leaving a name highly respectable in the religious and literary annals of this country.

The history of Campel consists of three volumes. The first dwells chiefly on the topography of the Grisons, and describes the different districts and towns; it likewise delineates the nature of the several governments, and the various forms of civil and criminal jurisprudence in the petty republics into which this country is subdivided. The second volume comprises the history of Rætia, from the earliest period to the Suabian war in 1499, under the emperor Maximilian I; the materials are chiefly drawn from Tschudi, Stumpf, and other Swiss historians. The third volume, in which the history is brought down to his own times, is the most interesting and authentic. Campel having submitted his work to the examination and correction of Bullinger and Simler, presented, in 1577, a copy to the diet of the three leagues, and received public thanks. But as his own fortune was inadequate to the expences of publication, and as no book-seller would undertake to print so voluminous a work, it has never been given to the world.

Remus, August 4.

The road from Cernetz to Scuol is a continual ascent and descent, and so rocky and bad, that I employed above eight hours in riding only twenty miles. The small plain of Cernetz soon ends, and is succeeded by a rude assemblage of rocks and forests. Suls is situated in a narrow pass between the river Inn and a ridge of rocks a little beneath the ruins of an old castle: close to it is a small fertile plain, which agreeably diversified the wildness of the rocks and forests.

The road to Ardetz follows the course of the Inn, which murmurs below in a deep narrow channel, heard but not seen. From Ardetz (over which hangs, upon a lofty rock, a ruined castle, called Steinberg) I descended a very steep craggy path to the Inn, which I crossed, and mounted a rapid ascent, leaving on my right hand the valley of Scharla, in which are silver mines belonging to the House of Austria, formerly rich and yielding a considerable advantage, but now exhausted. I passed through the straggling village of Trasp, close to a castle of the same name, situated upon the highest point of a perpendicular rock. Count Dietrichstein, as lord of the castle, is a prince of the German empire; it was given to his family by the Emperor Leopold, on condition that its possessor should always vote in the diet of the empire for the House of Austria; the formality of a garrison is maintained by a single Austrian soldier. From Trasp I again descended to the river, crossed it and ascended it to Scuol, where I arrived late, and set off early this morning.

From Scuol to Remus the mountains on the left slope gradually, and are richly cultivated; producing great quantities of wheat, rye, barley, flax, and hemp; the trees are chiefly pines, firs, and small birch, intermixed with underwood of nut-trees and

* Some authors place his death in 1582.

wild roses. The corn fields are raised in gradations (if I may so express myself) along the sides of the hills, like the vineyards in the Pays de Vaud. The ridges of the mountains on the right beyond the Inn are steep, and in many places perpendicular, with little appearance of vegetation.

It is now harvest time; and I have observed several clergymen employed in reaping the corn. The clergy are very poor in Lower Engadina, and are more numerous than in any other part of the Grisons. The income of no benefice amounts to more than £20 per annum; that of the inferior cures to little more than £8, and this scanty pittance is sometimes subdivided among two or three clergymen, or as many as happen to be unprovided for in the same parish.

I stopped at Remus to bait my horses. Near it is a ruined castle which once belonged to the Bishop of Coire, and was given by one of the former prelates to the Plantas of Zutz; in right of which donation they claim the privilege of administering the oath to the Landamman of Sotta Tasna. The only remains of this castle are two square towers, in one of which is a miserable apartment, where M. Planta gives an annual dinner to the Landamman.

Lower Engadina is divided into three communities, which send three deputies to the general diet. The first is composed of the parishes of Cernetz, Sufs, Lavin, Guarda, and Ardetz; the second comprises Vettan, Scuol, and Sent, and the third contains Remus, Schlins, and Samun. The two former communities make one High Jurisdiction; and the third forms another with Bevio, Valmorara, and Avers.

In civil causes there are two separate courts of justice, one for that part of the country which lies to the north, the other for the district to the south of the torrent Tasna, from which the two parts are called Sopra and Sotto Tasna: from each of these courts there lies an appeal, in the last resort, to the civil tribunal of Sotto Fontana Merla, in Upper Engadina, or to the neighbouring community of the valley of Munster. In criminal causes there are likewise two distinct courts, but without appeal; one for the tract to the north of the mountain Falon, another for the region to the south: according to this division the two parts are denominated Sopra and Sotto Montfalon.

By this complicated arrangement Vettan is connected with Scuol and Sent in political concerns, in civil affairs with Scuol, Sent, Remus, Schlins, and Samun, in criminal causes with Cernetz, and the other towns of the first community. This intermixture of various interests creates such an intricacy in the election of deputies, magistrates, judges, both civil and criminal, as would be uninteresting for me to detail, or for you to read.

One circumstance, however, cannot fail to strike the most inattentive inquirer; that although the mode of electing the judges is nearly the same with that of Upper Engadina, yet justice is by no means so impartially administered. I cannot forbear ascribing this material difference, in an affair of such importance, to the different condition of the two people; the inhabitants of the Upper Engadina, being more enlightened and affluent than their neighbours, are less open to the influence of illiberal prejudices and petty corruption.

Party runs very high both in Upper and Lower Engadina: there are some considerable families in these districts, of which the principle are those of Desaljs and Planta, both subdivided into numerous collateral branches. The history of this country is filled with the disputes and struggles between these rival houses, and presents in many periods little more than an uniform picture of domestic feuds. The two parties are distinguished by the appellations of *Scarbonada*, black, and *Alba*, white; the former devoted to the Plantas, the latter to the Desalises. At the time of elections for deputies

ties and magistrates the inhabitants of Lower Engadina seldom abstain from blows, which not unfrequently terminate in bloodshed.

I have more than once had occasion to mention the superiority of politeness which distinguishes the inhabitants of Upper Engadina from those of the lower district. This pre-eminence probably arises from the constant emigration of the former into other countries, and their intercourse with foreigners. I find also a great difference in the comforts of life in the two districts: although Lower Engadina produces necessaries abundantly sufficient for interior consumption, yet the inhabitants are less industrious, and consequently poorer. In Upper Engadina I was always able to procure at the commonest inns fresh meat, good oil, and excellent wine none of which I could obtain in the lower district. The villages are less commodious, and the houses of the peasants are also far inferior in cleanliness, neatness and convenience. This difference probably proceeds, in a certain degree, from the nature of the country: Upper Engadina, yielding but few productions, the inhabitants are obliged to seek from without some means of subsistence, and industry once excited brings with it its usual companion, opulence; on the contrary, the soil of lower Engadina, fertile in all the fruits of the earth, lays the inhabitants under no necessity of extraordinary exertion, and therefore has recourse to foreign trade.

Santa Maria, August 5.

In my way from Remus to St. Martin's bridge, being overtaken by a violent storm of rain, I took shelter in a cottage, and was cheerfully received by a well-looking old woman: my horse was put under a shed, and myself safely housed from the pelting of the shower. I found the rooms perfectly neat and clean, with much better furniture and accommodations than I expected from the external appearance of the cottage. The old woman talked, besides Romansh, German and Italian, and the latter remarkably well. The storm continuing two hours without intermission, I held a long conversation with her, and was greatly pleased with the polite and ready manner with which she expressed herself upon different topics. Upon taking leave I made several apologies for having dirtied her house, thanked her for her kind reception, and endeavouring to slip a piece of money into her hand, was surprised at her declining to accept it.

All these circumstances exciting my curiosity to obtain some intelligence concerning this elderly person, I collected the following account:—She is a native of Lower Engadina, of a good family, and formerly possessed a tolerable fortune; she married when very young, a nobleman of the first family of Milan, who came into Engadina, renounced the Roman Catholic, and embraced the Protestant religion. They lived for many years in the greatest harmony, till having dissipated almost all her fortune, he one day took leave of her, with a promise of returning in a short time. From that moment she never saw nor heard from him, and was afterwards informed that he was gone to Italy, and had turned monk; upon receiving this information, his wife collected the scanty remains of her fortune, and retired to the spot where I found her.

Towards the extremity of Lower Engadina I crossed the Inn which struggles through a very narrow channel, between two ridges of high and rugged rocks, over St. Martin's bridge, into the Tyrol. I here took a farewell of the Inn, which I had accompanied from its source. At St. Martin's bridge it forms the separation of Engadina and the Tyrol; on receiving the torrent Schargenbach, it quits the territory of the Grisons, and passing through the Tyrol and the Electorate of Bavaria, joins the Danube at Passau with so large a body of water, as to equal, if not surpass, the celebrated river in which it loses its name; hence Scheutzer has laboured to prove, that the Danube may be said rather to rise in the Rhetian Alps than in the mountains of Suabia.

In the village of St. Martin Romanſh is ſpoken; on the other ſide of the bridge German is the common language. From the ſteep banks of the Inn I aſcended a high mountain, along an excellent road, lately formed at the expence of the emperor, to facilitate the communication between Milan and Tyrol. On the top I had a fine view of the Inn and Lower Engadina, and then deſcended to Nauders, where I dined upon a cold fowl, with which Mr. Planta had kindly ſupplied my ſervant, and without which precaution I ſhould have made but a ſcanty meal.

From Nauders I traversed a ſmall pleaſant valley, bounded on the left by a ridge of mountains which ſeparate the Tyrol from Engadina; the valley is about a quarter of a mile broad, and almoſt level; it is covered with rich paſture, and watered by a lively torrent that falls into the Inn. At the end of this valley I gently aſcended to a lake, one of the firſt ſources of the Adige; beyond this is another lake, and further on a third; the banks of theſe lakes are prettily ſkirted with villages, at one of which I paſſed the night.

Having a long day's journey from thence to Bormio, I ſet out at five this morning, and proceeded by the ſide of the torrent which flows from the lakes and forms the Adige. The country is agreeable, and in high cultivation, eſpecially where it opens into a rich and extenſive view beyond Mals, which town I paſſed at a little diſtance on my left hand, and turned ſhort into the road that leads to the valley of Munſter. At the bottom of the firſt aſcent I went through Laitch, which is ſubject in ſpiritual affairs to the biſhop of Coire, in temporal to the Houſe of Auſtria, and mounted along a rich valley riſing to Santa Maria. Tauven is the laſt village in the Tyrol where the inhabitants ſpeak German; a little beyond I paſſed the barrier, and again entered the territory of the Grifons, where Romanſh is the common tongue.

Paſſing through Munſter, which derives its name * from a monaſtery for women ſuppoſed to have been founded by Charlemagne, I proceeded to Santa Maria, from whence I am now writing.

The valley of Munſter contains Santa Maria, Munſter, Valdera, Cierfs and ſeveral other villages, which form a community in the league of God's Houſe. Formerly the Biſhop of Coire had conſiderable influence in the government of this valley; juſtice was adminiſtered in his name, and he received the ameracements for criminal offences; but having violent diſputes with the inhabitants, he ſold theſe rights in 1727 to the Emperor Charles the Sixth. The republic of the Grifons, however, objecting to this tranſfer of immunities, which they conſidered as unalienable, the biſhop was obliged to repurchase and diſpoſe of them to the inhabitants, who are now perfectly independent. The people are divided into Catholics and Proteſtants; the former inhabiting the town of Munſter, with its immediate dependencies, the others the remainder of the valley; the magiſtrates and judges are choſen equally from both parties, who live together in tolerable harmony. The common language is the Romanſh, the ſame as ſpoken in Lower Engadina, though not quite ſo pure; as, on account of its proximity to and connection with the Tyrol, it is blended with the German.

LETTER LXXIV.—*Paſſage of Mount Bralio.—County and Town of Bormio.*

Bormio, Auguſt 7.

THE paſſage from Santa Maria to this place was very tedious, and would have been attended with ſome danger had I been detained a day later; as the great quantity of

* Monafterium.

partly from a payment in money, partly from an allowance in rye, and partly from the costs of suit in civil and criminal causes. But the restrictions laid on his authority will best appear from a short sketch of the established government.

The supreme authority resides in the podesta, and councils, consisting of a civil and criminal tribunal, whose members are annually chosen by the people.

The criminal court, or the council of Sixteen, who are changed every four months, is composed of two regents, the treasurer, the notary, and sixteen counsellors, ten of whom are taken from the town, and two from each of the vallies Furba, Pedinosa, and Cepino; of these members only the sixteen counsellors have any vote. At the request of the two regents, this council is convened by the podesta. In order to arrest a criminal, the whole council ought to assemble, or at least seven of the members; but in any case of importance, the podesta and two regents may give an order of arrest; this, however, being contrary to law, must be referred to the first meeting of the council, which, if satisfied, decrees in the words of their code, *Male captus; bene detentus*; the arrest was illegal, but expedient. The process is formed, and the prisoner examined by the podesta and two regents, who lay the proceedings before the council. Should the criminal be convicted, and will not confess his crime, the majority of the council decide whether the proofs are strong enough to justify torture: if that horrid expedient should be deemed requisite, it must be applied in the presence of the podesta, the two regents, the treasurer, and notary.

The fines are paid to the community, which, when the prisoner is insolvent, defrays the expence of the process. If the proofs against the prisoner appear insufficient for his conviction, the podesta and counsellors receive nothing for their attendance. This regulation, which was designed to prevent frivolous prosecutions, is productive of this ill effect, that it induces the judges to strain the slightest circumstances into proofs of guilt, and not unfrequently occasions the infliction of torture*.

The civil tribunal consists of twelve members, taken from the town of Bormio, who determine all civil causes in the first instance: from their decision lies an appeal to the syndicate of the Grisons.

* The members of these councils are chosen annually by the assembly of the people, consisting of, 1. All those who have been magistrates; 2. Of sixty persons from the town, nominated by the two chiefs of the people; 3. Of sixty persons chosen equally by the three vallies; 4. Of three deputies from the valley of Luvino. All these representatives assemble on the 15th of June, in the town hall of Bormio: the election is carried on in the most democratical manner, upon a plan calculated to prevent all influence, which cannot however be entirely excluded by the most complicated mode of election ever invented. Without enlarging upon the form of voting by ballot used at Bormio, I shall, on account of its singularity, only briefly describe the ceremony of choosing the two regents: After the nomination of the counsellors, the regent last in office points to some person in the assembly; and at the same instant the treasurer mentions some number, as for instance, ten, fifteen, &c. This number is immediately counted by the regent, beginning from the person to whom he is pointing: the last six of the persons counted retire into a separate room, and chuse six members of the assembly, namely, three from the district of Bormio, and three from the valleys, who appoint six candidates. The names being thrown into six bags, and balloted for, and the two, who

* Little more is wanting to the reformation of criminal jurisprudence in Bormio, than to render the examinations public, to pay the judges for their attendance, whether the prisoner is innocent or guilty, and to abolish torture.

have the greatest number of ballots, are regents. They remain in office only four months, in order to prevent the abuse of their power, which is very great.

The expences of government are regulated with extreme jealousy, and the accounts are annually submitted to the inspection of each district: when the regents retire from office, the treasurer delivers a summary of the expences and receipts incurred during their administration, which is read to the council of Sixteen, and cannot pass without their approbation. In October the council elects three examiners, two of whom are always taken from the inhabitants of the town, and one reciprocally from each of the three valleys. These examiners make a report, which is laid before a deputation from the town and the valleys on the 3d of May, and five copies are distributed to the several deputies, for the inspection of their respective constituents; lastly the report is read before the assembly of representatives, who meet for the election of the magistrates, when it is either finally approved or rejected.

The revenue of the county, however trifling, is nearly adequate to the current expences: it arises in the following manner:

	£.	s.	d.
Duty upon merchandise, which this year amounted to	29	5	0
Rent of the pasture upon the Alps of Frederiga, Gallo, and Braglio,	30	13	4
For liberty of cutting wood,	6	13	4
Profits arising from the sale of the corn granted by the government of Milan,	25	4	0
Rent of the baths,	13	6	8
Fines, upon an average,	14	0	0
Tythes of corn produced,	103	12	0
	<hr/>	<hr/>	<hr/>
	222	14	4

The following is a Table of the average Expences.

	£.	s.	d.
For making and repairing roads and bridges,	83	6	8
Salary of the magistrates,	71	8	0
Salary of the podesta and syndicate,	57	7	6
	<hr/>	<hr/>	<hr/>
	212	2	2

In this calculation a few occasional expences are omitted, which render the general outgoings greater than the receipts; the overplus is supplied by equal assessments. For the purpose of assessing, there is a perpetual committee, consisting of twelve members chosen from the town, and two from each valley, which is convoked by the regents. The sum required being laid before them they fix the quota according to a calculation of property.

The mountainous parts of this country produce only pasturage and wood; the lower district about Bormio yields corn, but not sufficient for domestic consumption. The inhabitants export cattle, a small quantity of cheese, and iron, obtained from the mine of Frelì, in the valley of Pedinofò, worked at the expence, and for the profit of a private person, who pays to the community a small annual rent. Wine is imported from the Valteline, corn from the Tyrol, corn and rice from Milan, linen from Bergamo and Appenzel, and cloth from Germany.

The Roman Catholic is the established religion, and the exercise of every other worship is prohibited: even the podesta himself, if a protestant, is not entitled to any indulgence in this particular*. Spiritual affairs are under the jurisdiction of the bishop of Coire, who has a vicar's court at Bormio, in which all ecclesiastical causes are tried.

The priests have peculiar privileges, which are even extended to those who wear a clerical dress. Although many abuses result from those exorbitant immunities, yet, from the nature of the government, they are more restrained here than in the Valteline. Most of the peasants possess a small portion of land, and in consequence of the freedom of the government, are much happier than the people of the Valteline and Chiavenna.

The town of Bormio is not unpleasantly situated, at the foot of the mountains, close to the torrent Fredolfo, which falls at a small distance into the Adda. It contains about a thousand inhabitants, but has a desolate appearance; the houses are of stone plastered; a few make a tolerable figure amidst many with paper windows; several, like the Italian cottages, have only wooden window shutters. This custom may not be uncomfortable in the mild climate of Italy, but cannot be agreeable in a country, subject to sudden changes of weather, and occasionally cold even in the midst of summer, when the bleak winds blow keenly from the Alps.

The landlord of the inn in which I am lodged is one of the regents, and a man of great consequence. I sit down to table with him, the podesta, and his wife. The podesta has been lately appointed to this government, and I can collect from the conversation which has passed, that he is perfectly ignorant of the laws and constitution of this country; in all my questions he refers me to the landlord, who is thoroughly acquainted with the theory and practice of the courts of justice, and well versed in the most minute circumstances, relative to the administration of affairs.

It has rained all day without intermission, and the showers in these Alpine countries pour down with such uncommon violence, that I esteem myself very fortunate in being well sheltered. The bad weather, however, did not prevent me from seeing every thing which is worthy of attention in Bormio, and in paying several visits to the principal families of the town, who consider an Englishman in this country as a kind of phenomenon, and shewed me every attention and civility in their power.

The Palazzo, or town-house, contains a suite of wretched rooms for the residence of the podesta, a chamber for the courts of judicature, and an apartment where the representatives of the people assemble. In one of the rooms is an engine of torture, which, in defiance of common sense, as well as humanity, is still used in these countries to force confession.

Being desirous of seeing the archives, I found it occasioned more trouble than I at first apprehended. The door of the apartment, in which they are deposited, having several locks, it was necessary for all the magistrates, who are entrusted with the different keys, to be present at the same time: no objection, however, was made to my admission, and all parties readily assembled upon this occasion. The archives, which are in the greatest disorder, contain many records relating to the history and constitution of Bormio, the criminal and civil statutes, and several charters from the sovereigns of Milan, confirming original privileges and adding others. The earliest of these acts is dated 1378, and signed by John Galeazzo Visconti.

* For the causes of this prohibition, which takes place in all the provinces subject to the Grisons, see the next letter.

The most important of the papers is the charter by which the Grisons confirm, in the most ample manner, the immunities granted to this country by the Dukes of Milan; it was passed in the diet of Ilantz, under Paul Bishop of Coire, in 1513, the year subsequent to that in which the Grisons annexed Bormio to their dominions. Many circumstances have concurred to deter the Grisons from infringing this charter: the two principal are, the situation of Bormio, and the spirit of freedom which distinguishes the inhabitants. By its situation upon the confines of the Tyrol, the people, in case of the least discontent, would receive encouragement and assistance from the House of Austria. This local advantage procured them, while under the government of Milan, much better treatment than was experienced by their neighbours in the Valteline, and a similar reason still continues to operate upon the conduct of the Grisons.

The spirit of freedom which pervades the constitution, has no less materially contributed to the security of their privileges: these people have always watched with a jealous eye the slightest advances of encroachment, and never failed to remonstrate with great unanimity and resolution, whenever the podesta has discovered the least inclination to exceed the bounds of his authority. Hence the Grisons have uniformly acted towards them with great moderation, and paid the readiest attention to their representations and remonstrances*.

LETTER LXXV.—*Tirano*.—*Sketch of the History of the Valteline.*

Tirano.

I QUITTED Bormio this morning about ten. The torrents are considerably swelled with the late rains, and the sides of the neighbouring mountains are sprinkled with yesterday's snow. I passed along the narrow valley of Cepino, through several wretched villages, among which not the least wretched is Cepino itself, consisting of a few straggling cottages, many of which are in a ruinous state. Having crossed the Adda, and continued on the left bank of the torrent, which dashes with great violence through a rocky country, in three hours I arrived at a Pass called La Serra, where almost the whole space between the impending rocks is occupied by the Adda.

The path runs under the gateway of an ancient tower, and leads from the county of Bormio into the Valteline. At Sondalo, which stands on the banks of the river upon an eminence, under a richly cultivated mountain, the valley widens, and becomes more and more fertile; in some places it is about a mile, in others scarcely a hundred yards in breadth. Near Tirano it exhibits an appearance of extraordinary fertility; the left ridge of mountains is chiefly overspread with hanging groves of chestnut-trees, intermixed with a few vines, above them are meadows and forests of fir. The ridge facing the south is richly covered with vines, which reach almost to the summit, studded occasionally with clusters of large trees; on both sides churches and houses half concealed by the foliage enliven the prospect. Below runs the Adda; the plain on each side of its banks produces abundance of corn and pasture, mulberries, walnuts, and other fruit trees, and vines carried over the corn and pasture in beautiful festoons from tree to tree.

Tirano is the capital of the Upper Terzero, and the residence of the podesta. Although the town contains several handsome buildings, yet, on account of the narrowness of the streets, and number of ruinous houses, the general appearance is desolate. The Adda divides it into two parts, which are connected by a stone bridge of a single

* In the new division of Switzerland the county of Bormio was, with the Valteline and Chiavenna, annexed to the Cisalpine republic.

arch. I observed the remains of stone walls which formerly surrounded this place; these walls, together with an adjoining fortress, were built by Ludovico Sforza; but dismantled by the Grisons when they acquired possession of the Valteline.

Tirano carries on but little trade, except during the time of the fair. The staple commerce of the town consists in the exportation of wine and silk; the wine is sent in large quantities into the country of the Grisons, to Bormio, and into the territories of Venice; the silk which is drawn from this district of the Valteline is not of the best quality, nor very abundant; part is forwarded to Venice, and the remainder through Chiavenna to Germany.

About half a mile from the town, on the other side of the Adda, is the church of the Madona, or the Virgin Mary, much visited by Catholic pilgrims; it is a large handsome building, constructed with marble and stone stuccoed. Part of the church is ancient, for I observed a date of 1206; and the carved ornaments are grotesque, but by no means badly finished. The modern building is in an elegant style of architecture; the principal entrance is formed by two Corinthian pillars ornamented with foliage and festoons of flowers, while the pilasters are neatly adorned with *high reliefs*, in the style of the antique. The era of the workmanship, as I collected from an inscription over the door, was 1533.

In the large area before the church is held, in the month of October, the fair of Tirano, remarkable for the number of cattle which are brought for sale: they are fed upon the highest Alps, where they continue until the snow begins to fall, and are chiefly sent from hence into Italy. The fair continues three days, during which time the authority of the podesta is suspended, and the governor of the Valteline has absolute jurisdiction over the town and district.

I cannot describe how much I am perplexed with a variety of languages. I speak Italian or French with the principal gentry, sometimes hold a conversation in Latin, talk a smattering of German with my servant, and with my guide and the common people a kind of corrupt Italian, like the Milanese. I write my notes in English, and during my progress through Engadina, was employed in collecting a vocabulary of the Romanish. You will not therefore be surprised should you find a confusion of tongues in my Letters.

The Valteline, called by the inhabitants *Valle-Telina*, extends from the confines of Bormio to the lake of Chiavenna, about the length of fifty miles. It is entirely enclosed between two chains of high mountains; the northern chain separates it from the Grisons, the southern from the Venetian territories; on the east it borders on the county of Bormio, and on the west on the duchy of Milan.

The Valteline, together with the counties of Chiavenna and Bormio (which had long been the source of hostility between the Bishops of Como and Coire,) came in 1336 under the dominion of Azzo Visconti, sovereign of Milan, who quietly transmitted them to his successors. Upon the death of John Visconti, who was Archbishop as well as sovereign of Milan, his extensive territories were divided between his nephews Galeazzo and Barnabas*. On the demise of Galeazzo his son John Galeazzo secured the person of his uncle Barnabas, and having confined him in the castle of Trevio until his death, which happened in 1395, annexed his dominions to his own, and became by this union the greatest and most powerful prince in Italy. Mudino, son of Barnabas, received an asylum under Hartman, Bishop of Coire, and as a mark of gratitude formally ceded to him his right to the Valteline, Chiavenna, and Bormio.

* I do not mention Matthias, the eldest brother, because he died soon afterward.

To this cession, at that time of no avail, the Grisons owe the possession of these provinces. The claim lay dormant for above half a century, until discontents arising in the Valteline, the Grisons made an irruption into the country in support of the Bishop's right; but their arms not being attended with success they purchased a peace, by renouncing all pretensions to the Valteline. They renewed, however, their claim in 1512, when Ludovico, called the Moor, Duke of Milan, was taken prisoner by Lewis the Twelfth, and the whole Milanese, comprising the Valteline, was occupied by that monarch.

Soon after this revolution the Grisons, in conjunction with the Bishop of Coire, entered the Valteline, and, having expelled the French troops, took possession of the country; they were received with joy by the inhabitants, who did homage to their new sovereigns, and in return obtained from them the confirmation of all their privileges. A compromise was immediately entered into between the Bishop of Coire and the three leagues, to share the sovereignty of this country. In the following year Maximilian Sforza, raised to the ducal throne of Milan upon the expulsion of the French, ceded in perpetuity the possession of the Valteline, Chiavenna, and Bormio, to the Bishop of Coire, and the Grisons; a cession ratified by Francis the First, in the treaty of peace which he concluded with the Swiss and their allies the Grisons in 1516, when he obtained possession of the Milanese.

In 1530 the Grisons acquired the whole dominion of the Valteline, to the exclusion of the Bishop of Coire; under pretence that the Bishop had not furnished his quota of men and money in the war with James of Medici, in defence of these ceded countries, they compelled him to sell his share of the sovereignty for a yearly income of 573 florins payable to him and his successors out of the customs of Chiavenna. From that period these provinces were possessed by the Grisons without molestation, until the rival interests of France and Spain, the intrigues of the Pope, religious enthusiasm, the zeal of party, and exactions of the Grison governors, kindled an insurrection, which commenced with a general massacre of the Protestants, and raged for a series of years with the most savage and unremitting fury.

In no country has the spirit of discord been more prevalent, or religious disputes carried to a greater height. The zeal of contending factions has communicated itself to the historians of these events; on both sides religion has been pleaded as a sanction to the most atrocious actions, and alleged by one party as an excuse for tyranny, and for rebellion by the other.

As the Valteline, Chiavenna, and Bormio originally belonged to the Milanese, the sovereigns of that duchy always looked upon the Grisons with a jealous eye, and secretly embraced every opportunity to foment the disturbances with which they, in common with all democratical states, are occasionally convulsed.

Upon the extinction of the family of Sforza in the person of Francis the Second, the Emperor Charles the Fifth seized the Milanese as a fief reverting to the empire, and, disregarding the claims of the French King, gave the investiture to his own son Philip. With the possession of the Milanese Philip succeeded to pretensions upon the Valteline; and although both he and his successor Philip the Third entered into treaties of alliance with the three leagues, by which they resigned all claims to this country; yet they never finally relinquished all intention of recovering a province which had been once dismembered from the Milanese, and which the contests between France and Spain rendered more valuable to them, than to their predecessors in the duchy of Milan.

During the constant wars which, from the accession of Philip the Second, the restless ambition of the Spanish court entailed upon Europe, the German and Spanish branches

of the House of Austria were inseparably united; and the councils of Vienna were directed by the cabinet of Madrid. Under these circumstances the Valteline, which, by connecting the Tyrol and the Milanese, afforded the only secure passage for the junction of the Austrian and Spanish troops, became of signal importance. Hence the Spanish governors of Milan, highly solicitous to acquire influence among the people, secretly fomented the spirit of disaffection, which the conduct of the Grison governors too justly provoked; promised assistance to the aggrieved inhabitants, and gained by these means a powerful party in favour of their court. The minds of the inhabitants being thus gradually won over to the Spanish interest, the Count Fuentes, governor of Milan, ventured, in defiance of the Grisons, to construct the fort * which bears his name, for the purpose of commanding the passage of the Valteline.

The same reasons which rendered the Spaniards desirous to secure the Valteline, induced the French to obstruct their designs. Henry the Fourth, with his usual vigour, zealously espoused the cause of the Grisons, and was preparing to send effectual assistance against the attempts of Fuentes, when he was assassinated; and the intestine troubles, which took place upon his death, for a time totally withdrew the attention of France from this quarter. The Spaniards, thus freed from their most formidable rival, pursued their projects upon the Valteline without opposition, and availed themselves of the domestic dissensions between the Grisons and the inhabitants.

The Grisons had long attempted to introduce the Reformation into the Valteline with the most injudicious zeal, and without paying sufficient attention to the prejudices of a superstitious people. Churches for the worship of the reformed religion were constructed, and ministers regularly settled with a permanent salary; schools for Protestant children were established at Sondrio, notwithstanding the remonstrances of the Romish priests, and the opposition of the people. Many privileges of the popish ecclesiastics were taken from them; privileges† which, though repugnant to every principle of sound government, were sanctified by usage, and could not be hastily abolished without exciting general discontent.

To these religious grounds of dissatisfaction were added others, arising from the tyrannical proceedings of the Grison governors, whom the advocates for rebellion painted, and it is to be feared with too much justice, in the most odious colours. "A system," they cried, "of avarice and extortion is established by law; the magistrates purchase their offices, and indemnify themselves by the plunder of the country. All things are venal; life, honour, and even conscience itself has a price; it is not possible for the governors to be more iniquitous, nor for the people to suffer a greater complication of calamity."

These well-grounded complaints were aggravated, and the crisis of rebellion accelerated by an act of flagrant injustice. Many inhabitants of the Valteline, suspected of favouring the Spanish court, particularly those who had opposed with the greatest zeal the introduction of the reformed doctrines, were arrested, and conveyed into the country of the Grisons. Mock courts of justice were established in several places, by which the prisoners were fined to a large amount; and some were even wantonly sentenced to the torture.

Among the sufferers was Nicholas Rusca, a priest of Sondrio, who had gained the universal esteem of the Catholics, by his unremitted resistance to the Protestant doctrines, and who, for the rigid austerity of his manners, was revered by the multitude as a saint.

* See Letter 68.

† They were independent of the civil authority for all delinquencies, and, amenable only to the Bishop of Coire.

The death * of Rutea, amidst the most excruciating torments, raised a spirit of fury among the people too violent to be appeased. The emissaries of Spain did not fail to increase the general ferment, and to suggest the most plausible motives for immediate insurrection, by representing that, as the Grisons were convulsed by factions, and France disturbed by intestine commotions, a favourable opportunity presented itself to shake off the yoke under which they groaned. The suggestions had their effect; and the inhabitants commenced hostilities by a general massacre of the Protestants.

The 20th of July 1620, was the day appointed for the perpetration of this horrid design. At dead of night Robustelli, the leader of the conspiracy, accompanied by a hundred followers, arrived at Tirano, and, having assembled the chief Catholics, laid before them the intention of extirpating the Protestants; the dreadful proposal was embraced with all the zeal of resentment, inflamed by fanaticism. At break of day the signal for massacre being given by ringing of bells, great part of the inhabitants issued from their houses, and repaired to the market-place with terror and anxiety. In this moment of perplexity the conspirators fell upon the Protestants, and encouraged the people to follow their example, by destroying the enemies of the Catholic faith. Few words being necessary to exasperate an incensed and superstitious multitude, every person seized the first arms which presented themselves, scoured the streets, stormed the houses, and assassinated the Protestants.

During this dreadful scene, the podesta, his family, and some of the principal Protestants took refuge in the town-house, and barricaded the doors; the Catholics however soon forced a passage, and burst into the apartments where the fugitives were collected. Their fury was for a moment suspended at the affecting sight of the podesta and his wife upon their knees, presenting their infant children with uplifted arms. But such was the implacable barbarity of the enraged multitude, who demanded with repeated instances the death of the podesta and his family, that this short respite was of no avail, and only served to embitter their fate; they were first imprisoned, and then put to death, without distinction of sex or age.

The next scene of the massacre was exhibited at Teglio, whither some of the conspirators were dispatched from Tirano; they were dressed in red, as a signal to the inhabitants that the rising at Tirano had succeeded. The Catholics soon collected in a body, and repaired to the church, where the Protestants were assembled for the celebration of divine service. One of them levelled his piece against the minister, who was preaching; but missing his aim, the Protestants rose up, drove out the Catholics, and barricaded the doors. The assassins then climbed up to the windows, and shot from the outside upon the crowded audience; the doors at length being burst open, all the Protestants were put to the sword excepting those who renounced their religion.

Another party of Catholics made their way towards Sondrio; but the governor of the Valteline, apprised of their design, ordered the inhabitants to take arms, and summoned the people of the neighbouring district to his assistance; in obedience to this injunction, both Protestants and Catholics began to assemble, but the Protestants were intercepted and destroyed. Some attempting to escape towards Engadina and Pregal, were overtaken in their flight, and involved in the common slaughter. Even the women laid aside the natural softness of their sex, and, hardened by superstition, practised every species of outrage upon the bodies of the deceased. Meanwhile the Catholic troops entered Sondrio, and exciting their partisans with the cry of "*Down with the enemies of the Catholic faith,*" made a general slaughter of the unhappy Protestants. Mercy, how-

* See Letter 80.

ever, was extended to the governor and his family, in a manner which does honour to the chiefs of the revolt who conducted the attack of Sondrio. He was first imprisoned, but afterwards, in consideration of his mild behaviour to the Catholics, dismissed with his family, and escorted in safety to the confines of the Valteline.

It would be shocking to humanity to enumerate all the particulars of this savage massacre, or to trace its devastation in the several towns of the Valteline. It continued three days without intermission; nor were its horrid effects confined merely to those who were affluated upon the spot. Many who escaped into the country were hunted down like wild beasts; others, after eluding the fury of their pursuers, were consumed by hunger and fatigue, and numerous dead bodies were discovered in the woods, caverns, and torrents. Several Catholics, who were allied to the Protestants, shared in the general disaster; even women and infants were slain in the most deliberate manner. Some Protestants saved their lives by abjuring their religion, and many, who refused to purchase their safety by this concession, were burnt alive.

In the midst of this dreadful carnage, one instance of singular humanity deserves to be recorded. Bartholemeo Peretti, the principal Catholic at Berbeno, being exhorted to put all the Protestants of that town to death, apprised them of their danger, and assisted them in effecting an escape. But this act of clemency was the occasion of his own destruction, and he was executed as an enemy to religion.

All the Protestants being either destroyed or driven out of the country, the remaining inhabitants renounced their allegiance to the Grisons, and framing a new form of government, threw themselves under the protection of the King of Spain, who sent an army to their support. The people of Bormio followed the example of the Valteline, with this difference, that they did not massacre, but only expelled the Protestants. Having entered into an offensive and defensive alliance with the inhabitants of the Valteline, they also formed an independent commonwealth.

The Grisons, divided among themselves, were totally unequal to the chastisement of their revolted subjects. The Catholics were desirous of employing the mediation of Spain, for the purpose of recovering the Valteline; the Protestants, inclined to vigorous measures, proposed an application to the Swiss cantons, Venice, and France. After violent dissensions, which were not terminated without bloodshed, the Protestant interest prevailed, and a deputation was sent to those powers.

Zuric and Bern instantly dispatched a body of troops, while the Catholic cantons refused to act against those of the same persuasion. Venice, alarmed at the growing power of the House of Austria, and desirous of a passage through the Valteline, gave a flattering answer to the request of the Grisons, but with a spirit of delay natural to a republic, deferred sending any actual succour. France too, having just emerged from a civil war, was more disposed to negotiate than to act with decision. Bassompierre was dispatched to Madrid to solicit the restitution of the Valteline; and, although a league was concluded betwixt the King of France, the Duke of Savoy, and the Republic of Venice, to assist the Grisons unless the Valteline was restored; yet all that could be obtained from the Spaniards was, that the forts of the valley should be placed in the hands of the Pope; but as the Pope was a secret partisan of the House of Austria, and inclined to favour the rebellion of the Valteline, it was evident that he would restore the forts to the Spaniards upon the first opportunity. In this interval the united troops of the Grisons, Zuric, and Bern being defeated with great slaughter, the Valteline seemed upon the point of being for ever dismembered from the Grisons, when the French court suddenly changed its plan of operation, entered into the war with a zeal as sincere as it was politic, and vigorously interposed in behalf of the Grisons.

This revolution in the French politics was owing to the ascendancy of Cardinal Richelieu, who no sooner began to preside in the cabinet, than the kingdom seemed to awake from that deep lethargy into which it had sunk, during the feeble administrations of Ancre and Luynes. That great minister instantly perceived the importance of the Valteline; without wasting a moment in deliberation, he demanded an immediate restitution of that country, and enforced this demand by sending a detachment of troops to the assistance of the Grisons, under the command of the Marquis de Couvres.

The general, animated with the spirit of the new minister, penetrated into these parts, joined his army to the Swiss and Grisons, and in two campaigns drove the Spaniards from the Valteline, Chiavenna, and Bormio. The two latter provinces were immediately restored; but when the Grison deputies repaired to the French general at Sondrio, to demand the cession of the Valteline, Couvres proposed that the exercise of the Protestant religion should be abolished throughout the valley; that the inhabitants should appoint their own magistrates, and pay a yearly tribute of 20,000 crowns; and he shewed himself so strongly inclined to circumscribe the authority of the Grisons over the inhabitants of the Valteline, that he was suspected of being bribed by them. But it soon appeared, that this conduct was occasioned by directions from his court, and proceeded from a reconciliation which, unknown to the Grisons, had taken place between the Kings of France and Spain.

Richelieu, the soul of the French monarchy, having brought to maturity his project for subjugating the Hugonots, was too great a politician to enter into a foreign war at the eve of a civil commotion; and well aware that he could not maintain possession of the Valteline without an expence of troops, which he could ill spare, temporised for the moment, and made overtures to Philip the Fourth, who, harassed by the long continuance of hostilities, seemed equally desirous of an accommodation: accordingly preliminaries of a new treaty were immediately adjusted by the contracting powers, at Mossion in Arragon. It was agreed that the Valteline should again be restored to the Grisons, under the following conditions: no other religion but the Roman Catholic to be tolerated; the inhabitants to elect their own governors and magistrates either from themselves or from the Grisons, but always from persons of the Roman Catholic persuasion; and the governors to be confirmed by the Grisons. In return for these privileges it was stipulated, that the inhabitants should pay an annual tribute, the amount of which was to be settled by mediation. In consequence of this treaty, concluded on the 4th of March 1626, the French resigned the forts of the Valteline into the hands of the Pope, and evacuated the country.

In conformity to this alliance, the inhabitants having elected Robustelli, who began the massacre, for their governor, and appointed twelve magistrates, sent a deputation to Coire to demand the confirmation of the Grisons, who were by no means disposed to accede to a treaty so destructive to the rights of sovereignty, which they possessed over the Valteline. Openly excited by the Republic of Venice, and secretly encouraged by the French minister, they refused to acknowledge the treaty of Mossion. But as they were not in a state to support their claims by force of arms, they could only remonstrate and negotiate, without producing any immediate effect.

Affairs continued in this state for three years, until Richelieu, having completed the reduction of the Hugonots by the capture of Rochelle, turned the whole force of France against the House of Austria; the diminution of whose power he had long meditated. He now threw off the mask: the dominions of the House of Austria were invaded on all sides, and every part of Europe became the theatre of his vast designs. Among other enterprizes the Valteline engaged no inconsiderable share of his attention; the Duke of

Rohan was dispatched to the Grisons with a formidable army, and, warring the Spanish troops in various encounters, dispossessed them of the Valteline.

Upon this decisive success the French abated much of their solicitude for the interests of the Grisons; although they began the war with demanding an unconditional restitution of the Valteline, yet they were no sooner in possession of the country than they professed, as on the former conquest, a great tenderness for the privileges of the inhabitants; and refused to surrender their acquisition to the Grisons, unless upon terms more favourable to the people than had been offered even by the treaty of Moisson.

The Grisons, having no prospect of assistance from any other quarter, found themselves under a necessity of acceding to these humiliating stipulations. The French, with a view probably of retaining the Valteline in their own hands, continued to delay the restitution, and clogged every subsequent negotiation with conditions still more unfavourable.

The Spaniards artfully availing themselves of these circumstances held out the most flattering overtures of accommodation. The Grisons, encouraged by these well-timed offers, and incensed at the repeated instances of duplicity they had lately experienced, rose up in arms, and drove the French from the Valteline. The treaty of Milan was the consequence of this revolution: a close alliance was concluded between the Spaniards and the Grisons; and the Valteline was restored under the guarantee of that very power which had originally excited the inhabitants to revolt.

This treaty, contracted in the year 1635, secured to the Spaniards the passage of the valley, which was the great object of the war, and restored the Valteline, Chiavenna, and Bormio to the Grisons, under the following conditions: an act of oblivion; the immunities of the subject countries to be confirmed as they existed before the revolution of 1620; no religion but the Catholic to be tolerated; no person of any other persuasion to be permitted to reside, excepting the governors, during the two years they should continue in office, and the Protestants possessed of lands, who should not be allowed to remain in the country above three months in the year; the privileges of the ecclesiastics to be restored in their full latitude.

A few alterations were made in the government of the Valley, and some regulations introduced for the purpose of stemming the torrent of injustice and corruption; they consisted chiefly in a new method of nominating the governors, and in creating the office of assessor. The articles were guaranteed by Spain, and inserted in the capitulation, or treaty, ratified in 1637, at Milan, in the presence of the deputies from the Valteline.

The deputies reproached the Spaniards for having summoned them to Milan, in order to be present, in silence and with tears, at the subversion of their liberty; and, when the treaty was announced to the inhabitants of the Valteline, a general despair spread through all ranks. The people universally lamented that they had been deluded into a revolt under a promise of protection; that they had expended during this fatal war above 25,000,000 of florins*, for no other purpose than to procure an alliance between Spain and the Grisons, and to be restored to their original masters, exasperated by their revolt, and preparing to renew the former acts of injustice and tyranny which had driven them to rebellion. Nor were these murmurs ill-grounded; for, except the total exclusion of the Protestant religion, no material alteration was made in the state of this valley.

Since this treaty the laws have been no less perverted than before, the exactions of the governors have continued as exorbitant, and the courts of justice as iniquitous and

* Near £2,000,000 sterling.

corrupt. The change in the administration of justice has proved no alleviation; the creation of the assessor's office served only to give the sanction of law to the most iniquitous proceedings, or to vary the mode of oppression. This innovation has been moreover attended with this bad effect to the bulk of the inhabitants; before the rebellion the nobles were principally subject to the rapacity of the Grison judges; but since the pacification, the people have been more exposed to exactions.

I have thus brought down the history of the Valteline to the pacification of 1637. Since that period no material change has taken place in the situation of affairs. The sovereigns of Milan have always cultivated the friendship of the Grisons; and the inhabitants of the Valteline endured a regular course of tyranny under the government of a free state; confirming a fact notorious in the annals of ancient Greece, that no people are more oppressed than the subjects of a democracy *.

LETTER LXXVI.—*Government of the Valteline.*

THE Valteline is divided geographically into three principal districts, and politically into five governments.

The three districts are, 1. *Terzera di Sopra*, or the Upper District; 2. *Terzera di Mezzo*, or the Middle District; 3. *Terzera di Sotto*, or the Lower District.

The five governments are, 1. Of the Upper District; 2. Of the Middle District, called also the Government of Sondrio; 3. Of Teglio; 4. Of Morbegno; 5. Of Traona.

Each of these five governments is subject to a magistrate appointed by the Grisons, who is changed every two years. The magistrate over the middle district is called *Governor* of the Valteline, and possesses, in some respect, a superior degree of authority to the others, who are styled *Podestas*; he is also captain-general of the Valteline.

But before I proceed to explain the form of government, it may be necessary to lay before you the method of electing the governor and podestas, to whom the Grisons delegate their authority over the Valteline.

In 1662 some efforts were made to restrain the excessive venality and injustice of these magistrates, which were derived from the public sale of the governments, and the share

* During the late contests between France and the House of Austria the Valteline became an object of great importance, and the neutrality of the Swiss and Grisons alone prevented the occupation of the country by one of the contending parties. The inhabitants, irritated by a long series of oppressions, eagerly adopted the new principles diffused by the French agents, and were anxious to deliver themselves from the

by the natives of Bormio and Chiavenna.

The Grisons, who had recently experienced a revolution in their form of government, and hopeless of deriving assistance, either from the Swiss Cantons or from the House of Austria, requested the mediation of the French Republic, which being also accepted by the revolted provinces, the subject of dispute was referred to Bonaparte, and two deputies on each side ordered to repair to Milan. The deputies from the revolted provinces instantly made their appearance, but the Grisons, torn by intestine factions, and averse to the mediation of the French, which they had been unwarily induced to solicit, not only declined sending their deputies, but returned no answer to the repeated summons of the French General. In consequence of this silence, Bonaparte decided the contest, by declaring the revolted provinces independent, and confirmed the union which they solicited with the Cisalpine Republic. Thus, after a period of near three centuries, the Valteline, Chiavenna, and Bormio were again incorporated with the Milanese, under a republican form of government.

of the fines for criminal offences between the Grisons and the governors*. To prevent corruption in the distribution of their offices, and exaction in the governors, two important changes were made. Instead of appointing one person, four candidates, nominated by the community to whom the turn of election belonged, drew lots for the charge. But this alteration would have been attended with few beneficial effects, had it not been followed by another, which tripled the stipend of the governors, and precluded them from any share in the fines: yet these salutary regulations, which prevented the Grisons from selling the governments at so high a price, were a few years after abolished by the diet. In order, however, to preserve some appearance of impartiality in the choice of magistrates, it was stipulated in the treaty of Milan, that three candidates should be nominated by the community to whom the election belongs, and that one of these should be appointed by the diet. Yet this mode is a mere formality; three are always presented, but the diet never fails to nominate the person recommended by the community. These magistracies are allowed to be openly purchased: in general, part of the money is assigned to the public fund of the community, and the remainder distributed among the body of the people, in whom the right of election is vested, and whose votes are seldom obtained without additional bribes. It will easily be imagined what a dreadful scene of corruption is opened by this mode of proceeding; and how frequently persons are appointed to the governments, who are totally inadequate to the discharge of their trust.

These magistrates, as representatives of the sovereign state, enjoy the supreme authority, and are entrusted with the power of life and death; and, though apparently controlled by the laws, devise means to evade them. But their authority will be best understood from an account of the civil and criminal courts of justice.

The criminal tribunal is composed of the governor, vicar, and assessor.

The governor arrests, imprisons, and examines the delinquent; though, according to the letter of the law, no examination ought to be made but in the presence of the vicar and assessor. The criminal being convicted, and the sentence passed, the governor enjoys the power of remitting the punishment, excepting in cases of high treason, premeditated murder, or other enormous crimes. He has a small annual stipend paid by the Valteline, but derives the chief part of his income from the fines for criminal offences, of which he receives two thirds. In all trials he is bound to follow the penal statutes, which are drawn up with great precision and clearness.

The vicar is always a Grison, and is chosen by rotation from the several communities: three candidates are presented to the inhabitants of the Valteline, who appoint one of them to the vacant office. This mode, adopted in the treaty of 1639 to check cor-

* It is necessary to apprise the reader that, when I use the word *governor* simply, I apply it indiscriminately to the governor of the Valteline and the four podestats.

† All authors, both native and foreigners, who have written upon the Grisons, have not failed to enumerate the ill effects resulting from this sale of governments, which is authorized by law; but none have expressed their disapprobation in stronger terms than Fortunatus Juvalta, in the following passage from a manuscript account of the Grisons:

Qui ad honores et præsertim ad questuosos illas præfecturas aspirabant, non aliter quam ambitu et largitionibus voti compotes fierent. Omnia enim venalia prostrabant, non secus ac alia merces.

Neque vero privati tantum homines mercimonia illa exercebant, sed communitates integre etiam cauponabantur, neque erubescabant præfecturam communitatis cum legationibus ad dictas seu conventus publicos, quarum in ipsorum manu erat electio, cum officiis ad subditos et aliis emolumentis communitati provenientius, consilio publico, sollemniter, constituto pretio, in multos annos vendere, et ne quid ambigi posset, publicis tabulis perscriptis consignare. Indigni prorsus aures libertate, utpote qui illam tam turpiter et scelerate profanarent ac prostituerent. Emiores isti emebant, ut carius venderent, ideoque ubi spes aliqua lucri affulgebat, merces suas venales exponebant, et plus offerentibus addicebant.

ruption, has not been attended with the desired effect. The community, in whose turn it is to elect the three candidates, leaves to the purchaser of the office the power of nominating his two associates; the diet, in delivering in the three names, recommends the person who had been previously designated by the community, and this recommendation is always accepted by the Valteline. The vicar ought to attend in person all trials when the governor examines the prisoners; but this custom is now fallen into disuse, and in lieu of his attendance, he receives an annual sum of 1127 Grison florins, about £ 83, from the governor of the Valteline and each of the four pedestras: a shameful elusion, as the vicar was designed to be a kind of counsel in favour of the prisoner, and to prevent injustice in the mode of examination. When the prisoner is convicted, an account of the process is laid before the vicar, who must confirm the sentence. Torture, for the purpose of forcing confession, cannot be inflicted without his consent, and in his presence, which is never dispensed. Besides a small salary, and the annual sum of 1127 florins, he has a stated allowance, as well for every consultation, as for each time that he is present at the infliction of torture.

The assessor must be an inhabitant of the Valteline; he is nominated by the vicar from three candidates, chosen reciprocally from each of the three Terzeros. His vote is necessary to concur with the vicar in ordering torture: he must also attend when it is applied, and confirm the sentence passed against the convicted persons. He has no regular salary, but his profits depend upon the number of processes in which he is consulted. This is the only office which gives to the inhabitants of the Valteline any share in the criminal jurisprudence.

According to the original intention of the statutes, the assessor ought to be a person well versed in the laws of the country, and should be considered as an advocate for the accused; but as he is obliged to the vicar for his nomination*, he is commonly his creature, and seldom gives his vote in opposition to him.

Such is the general theory of the criminal jurisprudence in this country, by which it appears that the power of the governor is limited as well by the strict letter of the law, as by the interference of the vicar and assessor, whose concurrence is necessary for passing a final sentence. But this limitation exists only in theory; for the laws are easily eluded, and even made subservient to the conviction of the innocent as well as the guilty. The vicar and assessor, be they ever so upright, can hardly prevent the oppression of the judges; and if they are themselves rapacious, they receive their share of the plunder, for conniving at the governor's injustice.

Having gained insight into the practice of the courts of justice, I shall lay before you the general mode of proceeding, from the arrest of the criminal to his final sentence, interspersing the account with occasional remarks, which will serve to shew the abuses introduced into the administration of justice.

The governor issues the order of arrest, and commits the criminal to prison; he detains him in confinement as long as he pleases, delaying or hastening the inquiry as he thinks fit. The examination is secret, no one being present but the governor, or his substitute, and the notary, who writes down the process. It must be evident with how much ease persons versed in the arts of chicanery can brow-beat the ignorant, and perplex the prisoner, who is allowed no counsel. If the criminal is found guilty, whatever is his crime, he may make a composition with the governor, before the case is referred to the vicar; or, in other words, as the examination is secret, the governor can draw

* Usually the assessor either pays the vicar for his appointment, or else delivers him all his regular fees of office.

up the process in the most favourable manner, and may give what explanation he pleases.

If no composition is made, the case is laid before the vicar and the assessor, who are obliged to give their vote according to the letter of the law; and as the statutes are very severe, the penalties are either heavy fines or corporal punishment. In the former circumstance, the governor receives two thirds of the fine; and, as in the latter, he has the power of remitting the punishment, excepting for the most atrocious crimes, he generally accepts a commutation in money, if the prisoner is able to pay it. By these means most offences may be easily compounded for; a circumstance which empowers the rich to commit crimes with impunity. It is, however, a matter of little consequence to the governor whether the prisoner is rich or poor; in the first instance, he may receive a composition from the prisoner himself, in the latter from the parish. For, in case the punishment for the crime is corporal, the expences attending it are considerable, as the executioner of Coire must inflict it; for which reason the governor generally remits the penalty, and receives from the parish a composition in money somewhat less than the expences of inflicting corporal punishment.

We may add to this list of grievances the power possessed by the magistrates of delegating their authority without residing in the government. If the delegate is a Grison, he is called *Assistente*; if an inhabitant of the Valteline, *Tenente*. He either purchases the fines and perquisites upon a calculation of their average value, or is responsible for them to the governor. In some places the delegation is almost always bought by the same person, who resides upon the spot, and becomes a perpetual judge; in others, a society of persons join to purchase the profits of the magistracy; they appoint the nominal delegate, and secretly direct the processes. Such a delegation may be called a settled tyranny, and, according to the expression of an elegant author *, “*stabilishes a wholesale traffic between criminals and courts of justice.*”

From this general view of the criminal jurisprudence, we may readily infer the wretched situation of the inhabitants; where the supreme magistrate purchases a temporary office at an exorbitant price, and has an inadequate salary; where the principal profits of his charge arise from the fines for criminal offences; where it is his interest to arraign and to convict; and where he is himself the interpreter of the laws, of which he is commonly ignorant, the accuser of the party, and the judge.

I have already mentioned the power which the governor enjoys of pardoning all offences except the most atrocious crimes. A pardon of this kind is called *liberation*; and there are printed papers that contain its form, in which blank spaces are left for the name of the person, the crime committed, the date, and the signature of the judge. I enclose a copy of a liberation †; it brings to my recollection those acts of indulgence, which

* Eden's Principles of Penal Law, p. 61.

† The following is the form of a liberation:

Podestà Regente della Giurisdizione di Tirano,
e sue Pertinenze, &c. Giudice de Mallesi
con Meo, e Misto Impero, e con
autorità di Spada, &c.

Per tener della presente, ed in ogni altro miglior modo, &c. abbiamo libertato ed assolto, siccome liberiamo ed assolviamo, libero ed assolto essere vogliamo, e dichiariamo, che sia.

Here the name of the person is inserted.

da ogni, e qualsivisa pena pecuniaria, arbitraria, o assittiva del Corpo, nella quale sia incorso, o abbia potuto incontrare per avere.

Here

which the Catholics obtain from Rome for the absolution of their sins; with this difference, that the acts of indulgence refer to a future state, the liberation to this life.

The price of these pardons varies according to the magnitude of the crime, the condition of the culprit, and more particularly the time in which it is granted; for the sum is greater when a governor first enters upon his office, than when he is retiring. Sometimes, during the last two or three hours previous to the expiration of the office, pardons may be procured at the lowest rate; and I was assured from good authority, that a liberation for homicide has not unfrequently been obtained for about four-pence.

Do not suppose that this account of the venality which reigns throughout the Val-teline is exaggerated; for I have taken great pains to ascertain the truth, and it has been confirmed by persons of all ranks, both in the Grison and subject countries. Nor will you be led to imagine that all the governors are equally rapacious and unjust. Like the Roman proconsuls, some carry their rapine to the height, others are less exacting, and a few are free even from the most distant imputation of injustice.

The civil courts of justice remain to be considered.

Although the governor presides and passes sentence, yet, by a singular privilege, the cause is not always left to his absolute decision: he examines the witnesses; and draws out the processes, but, at the request of either party, the cause may be referred to an arbitrator, who is called *Savio*. He is either nominated by the plaintiff and defendant, or, if they cannot agree, is chosen by lot in the following manner: the plaintiff and defendant choose each six persons; from the six appointed by the defendant the plaintiff selects one; the defendant nominates one of the six chosen by the plaintiff, and these two persons draw lots who shall be arbitrator. The arbitrator then examines the acts of the process, gives his opinion, which is called in the statutes of the country, *Il Consiglio del Savio*; and should the governor refuse to pass sentence, the opinion of the Savio is *ipso facto* a decision.

From this decision an appeal lies to two arbitrators, called *Probi*, who are appointed by the parties in the manner above mentioned: should they disagree, then the two parties amicably nominate a counsellor, who accedes to one of the *Probi*; this sentence is final, if it concurs with that of the Savio, but otherwise, a farther appeal lies either to the syndicate or diet, and ultimately to the several communities of the three leagues. When the governor decides in the first instance he receives 3 per cent. of the contested property, but only 1 per cent. when recourse is had to arbitration, the other 2 per cent. being paid to the Savio.

By this singular privilege of referring to arbitration in all causes of property, the civil courts of justice are not open to such corruption as the criminal tribunals; yet venality has taken so deep a root in the affairs of this unhappy country, that bribery finds its way even into these tribunals. When the civil causes are brought into the governor's court, and decided by him without the intervention of the Savio and Probi, there is an appeal to the syndicate, a body whose office I shall now explain.

Here the crime is mentioned.

Item. Da ogni altra cosa annessa, commessa; incidente; risultante; emergente, e dipendente dalle premesse, &c. Però cassando, &c. annullando, &c. comandando, &c. imponendo, &c. restituendo, &c. supplendo, &c. Essendo Noi alla suddetta Liberazione divenuti attesi l'Autorità, con cui, &c. ed attesa una tenue composizione con Noi, in nome ancora dell' E. C. D. fatta, e pagataci.

Dat, in Tirano dal Pretorio questo giorn

anno

At the end of every two years when the magistracies expire, syndicates are appointed by the Republic of the Grisons, for the purpose of inquiring into the administration of the several governors, and of hearing appeals from their decisions. This court is composed of nine members, including the president, chosen reciprocally by the communities, three from each league. They make a circuit into each of the subject provinces; send out proclamations, that they are ready to receive all-accusations against the governors, examine witnesses, decide appeals, and mitigate fines, without the concurrence of the vicar and assessor. They do not, however, finally determine in civil causes, which may be referred from their decision to the diet. The syndicate which was intended to oppose corruption and injustice, is nevertheless the great support of both; nor can it be otherwise, for the syndics purchase their office from the several communities, and as their salary is very small, can only reimburse themselves by receiving bribes from the judges or from the appellants. Their office is bought for a greater or smaller sum, as more or less appeals of consequence are to be submitted to their arbitration. And what occasions still greater abuses, when a cause of great importance is to be referred to the syndicate the governors frequently purchase from the communities, in whose right the election is for that time vested, the power of nominating the syndics, and of course appoint their own creature. Hence this court is become so corrupt as to give rise to a proverb, "*As venal as the syndicate.*"

Having thus endeavoured to draw a general sketch of the civil and criminal jurisprudence in this country, I shall now mention the domestic administration of affairs.

All public concerns which do not fall under the jurisdiction of the Grisons, are discussed and determined by a council composed of five representatives, one from each district, which meets as occasion requires at Sondrio. Previous to its sitting, the public notary writes to the several parishes of the five governments, informing them of the business to be transacted: each parish has its meeting, in which every householder possesses a vote; and each district has its assembly composed of deputies from the several parishes, who chuse the representatives. In all affairs of importance, the representatives are bound to vote in conformity to instructions received from their constituents, and all cases of importance are decided by a majority of voices. The council is empowered to demand a redress of grievances from the Grisons, and to remonstrate against infractions of the privileges granted to the inhabitants by the capitulation of Milan. The governor of the Valteline is present, but has no vote.

The tribute which the Valteline pays to the Grisons is so small, the salaries of the governors so inconsiderable, and all duties so trifling, that most writers, who have had occasion to mention this valley, have described it as the most happy and the least oppressed of all subject provinces; without reflecting that notwithstanding these advantages the country is annually drained of a sum very disproportionate to the ability of the inhabitants.

It is difficult to ascertain the exact amount of this sum, as it arises chiefly from the secret as well as public profits of the courts of justice. But when we consider that the greater part is procured by extortion; that scarcely any distinction is made between innocence and guilt; that great crimes are committed with impunity, and petty offences severely punished; we may add, that the mode of exaction is more detrimental to the country than the loss of the specie itself; inasmuch as a corrupt administration of justice is the worst of all oppressions.

The clergy of the Valteline are not responsible to the ordinary courts, their immunities being so exorbitant as to render them almost independent of the civil authority. they are only amenable to the court of the bishop of Como. If a priest is guilty of any
misdemeanour

misdeemeanor, his person cannot be secured without the concurrence of the bishop, and governor of the district in which the crime was committed. It is therefore extremely difficult to bring an ecclesiastic to justice; as impunity is easily purchased, either by securing the favour of the bishop's vicar or of the magistrate. Nor are these pernicious privileges confined merely to the clergy, but extend to all persons wearing an ecclesiastical dress, with the permission of the bishop of Como.

The Grisons have frequently endeavoured to abolish these immunities, but always without effect. The nobles of the Valteline are interested to support the privileges of the clergy, because they can easily obtain the permission of wearing the ecclesiastical dress, and can secure their property, by leaving their estates to the clergy at the extinction of all the heirs named in the succession. Such estates, called *beneficia gentilitia*, are very common in the Valteline, and cannot be seized for debt, or confiscated.

All civil causes of the clergy, below the value of two hundred livres *, are decided by the vicar of the Bishop of Como; above that sum they are brought before the bishop. An appeal from his decision lies to the pope's nuncio at Lucern, from him to the ecclesiastical tribunal at Aquileia, and from thence to Rome.

LETTER LXXVII.—*Teglio*.—*Sondrio*.—*Anecdotes of the Painter Ligario*.—*Morbegno*.—*Delebio*.

INSTEAD of proceeding by the nearest road from Tirano to Sondrio, I made a circuit by Teglio. I traversed the plain of Tirano, rich in all the productions of nature, and continued for some way at the foot of the northern ridge of mountains, which are highly cultivated to their very summits. Lower towards the south-east, and further towards the north-east, the tops of the rugged Alps make their appearance glistening with snow. I passed through a continued vineyard, and the soil is so fertile, that corn, millet, flax, and hemp, are sown among the vines, which overhang in beautiful festoons. Every village is adorned with a thick grove of chestnut trees, whose rich and dark foliage produces a pleasing effect.

Teglio situated upon the top of a mountain, about nine miles from Tirano, and twelve from Sondrio, is a long straggling place, and contains about three hundred houses. Close to the town are the ruins of a fortress standing upon an insulated rock, and formerly esteemed of great strength. * This elevated spot commands a very rich and extensive prospect from Tirano to the lower part of the valley beyond Sondrio, as far as Morbegno. The government of Teglio is said to comprise the twelfth part of the Valteline; it is the most populous district, and contains about eight thousand souls; it produces in a good season much more corn than is sufficient for the consumption of the inhabitants, and rivals Sondrio and Tirano in the goodness of its wine.

Finding little at Teglio but the face of the country to excite my curiosity, I proceeded in my journey to Sondrio, through a tract equally cultivated with that which I had already passed. I descended by a gentle slope until I came to the Adda, which I followed, as it roars through the plain, sometimes confined in a narrow channel, sometimes expanding in a wider bed, and threatening the country with continual inundations.

Sondrio is the capital of the valley; the residence of the governor and of the vicar; but like all the towns I have hitherto seen in the Valteline, seems deserted, and displays little appearance of trade or animation. The town, partly built in a plain, and partly

* Sixty-four Valteline livres = a pound sterling.

upon a rock, is placed in a very romantic situation, at the extremity of a narrow valley, and occupies both sides of the Malenco, a furious torrent which frequently overflows its banks. Many of the houses are very antient; for I observed the arms of the Visconti, formerly the sovereigns of this country painted upon the walls; these arms representing an enormous serpent crushing a man in his jaws, are too remarkable to escape observation.

The Valteline, from its neighbourhood to Italy, has imbibed a taste for the fine arts, and contains several collections of pictures which are not unworthy of notice. This country, however, has produced few artists of any eminence. Pietro Ligario is almost the only painter who deserves to be mentioned, and his name is scarcely known beyond the limits of the Valteline.

Ligario was born at Sondrio in 1686, of the ancient family of Ligario, which took its name from a neighbouring village. Having discovered a lively genius, and a taste for the elegant arts, he was sent when young to Rome, under the care of Lazaro Baldi, from whom he learnt that exactness of design which characterises the Roman school. From thence he repaired to Venice, and passed some time in studying that exquisite colouring for which the Venetian masters are distinguished. He made himself first known at Milan, where he met with some encouragement; and in 1727 returned to the Valteline; he found, however, but little employment, until he was honoured with the patronage of Count Desalis, Envoy from Great Britain to the Republic of the Grisons. As he rose in reputation his business increased; but being always poor he was frequently compelled to finish his productions with such haste, as rendered it impossible to give all of them that perfection, which he was capable of bestowing. Hence arises that inequality which is so remarkable in his paintings.

There is scarcely a church in the Valteline which does not possess one of his pictures: the most capital of his pieces are the martyrdom of St. Gregory, in one of the churches at Sondrio, and St. Benedict, in the chapel of a nunnery near the town. These were his latest performances; and as they were, contrary to his usual custom, finished with great labour and exactness, may be considered as the test, from which we ought to estimate his abilities as a painter. The figures are well grouped, the principal characters distinctly marked, and the expression of the heads is admirable; the style of colouring is lively without being gaudy, and chaste without being dull. A few days after he had painted St. Benedict, he was seized with a violent fever, and expired in 1752, in the 67th year of his age.

Ligario is described by the connoisseurs as a painter who united correctness of design to beauty of colouring. He is remarkable for grouping his figures to the best advantage, and his heads are drawn with a noble simplicity; he is, however, represented as too much inclined to an imitation of the antique; his figures often resemble statues, and the folds of his drapery fall with too much precision, like the wet drapery in the sculpture of the antients. The character of his faces is chiefly Grecian; but, it is remarked, that they are too similar to each other, and look like the portraits of persons of the same family; a circumstance not unusual to those, who too servilely copy the antique.

Beside painting, Ligario was skilled in music, mechanics, and agriculture, and has left behind him specimens of no ordinary acquaintance with each of those arts. He made, for his own amusement, an organ of large dimensions, and constructed a clock with a cylindrical pendulum, remarkable for the accuracy of its movements. He was fond of rearing plants and simples, and was so much attached to the study of agriculture, that he wrote instructions to his family upon the cheapest and best method of cultivation. He endeavoured to infuse into his son and daughter, Caesar and Victoria, a fondness

fondness for the polite arts. They both followed their father's profession, but although not without some degree of merit, failed of equalling his reputation. Victoria was chiefly distinguished for her skill in vocal and instrumental music.

I rode this morning to see the painting of St. Benedict, at a nunnery about a mile and an half from Sondrio; having examined the painting, the abbess sent a message, desiring the favour of my company, which I accepted with pleasure. Upon entering the parlour, I made my obeisance to the abbess who, in company with two nuns, was seated on the other side of the grate. After the usual compliments, and enquiries if I was pleased with the picture, wine and cakes were brought in; the wine was the produce of their own vineyards, and was excellent; the cakes were shaped like skulls and bones.

The abbess and her friends behaved with great ease and politeness; they asked many questions relating to England, natural to persons sequestered from society; and one of them apologized for their curiosity, by remarking that women were not less inquisitive or less fond of talking, because they were shut up in a nunnery. The person who made this remark was pale, but not unhealthy; her figure was remarkably fine, and she had been very handsome: a disappointment in love, as I am informed, first induced her to take the veil, and to bury so much beauty and elegance in a convent. Struck with her manner and address, I could not help wishing that she may never live to regret such a step, and may feel all that ease and tranquillity of mind which are expected, but not always found, by those who take the veil.

I am just returned to Sondrio, from a small excursion to Morbegno, and towards the extremity of the Valteline as far as Delebio. Near Sondrio the valley is about two miles in breadth, and remarkably fertile in vines and all kinds of grain. The right chain of mountains is clothed almost from the bottom to the summit with a continued vineyard, which is esteemed to yield the best wine in the Valteline. I rode along the plain which stretches, without interruption, from Sondrio to the lake of Como. The middle part of this plain is occupied, and frequently overflowed by the unruly Adda, and being marshy yields nothing but coarse pasturage; the sides rise gradually into gentle acclivities, and display a rich variety of natural productions.

Morbegno lies on the left side of the Adda at the foot of the southernmost chain; it is the handsomest town in the Valteline, and appears to have more shops, and to carry on more trade than all the others united. M. Planta, the present podesta of Morbegno, no sooner heard of my arrival, than he politely waited upon me at the inn, and invited me to his house. Finding that I was desirous of proceeding to Delebio, he insisted upon accompanying me; and having ordered his carriage, proposed an immediate departure, that we might return to his house by supper. M. Planta is the same gentleman to whom I was obliged for so hospitable a reception at his house at Cernetz; and I am happy to find that he is among the few who act with honour and integrity in this land of extortion. When vicar of the Valteline, he discharged the duties of that important office with great credit, and has entered upon his government with the same spirit of integrity. There is a pleasure in receiving acts of politeness in a foreign country; but it is a double satisfaction to be obliged to persons whose characters are deserving of the highest esteem.

The road from Morbegno to Delebio runs along the foot of the chain of mountains, which separate the Valteline from the Venetian territories. This chain having a northern aspect yields few vines, but is richly clad with hanging groves of chestnut-trees, chequered with meadows and fields of corn. The Valteline expanded gradually as we advanced towards the lake of Como; in this part the whole plain is chiefly a morass, exposed

exposed to the inundations of the Adda, which flows in a wide channel. The silk, which begins to be of great importance in the trade of this valley, is chiefly exported from Delebio; through Chiavenna, into Germany. Upon my return to Morbegno, I supped with M. Planta, and after the repast was entertained with an excellent concert. After returning to Sondrio, I crossed the Adda opposite Morbegno, over a handsome stone bridge, and proceeded along a road carried at the foot, and on the sides of the northern chain of mountains. It was almost a continued vineyard with millet, Turkish corn, flax, and hemp, growing between the ranges of vines.

The romantic beauties of the Valteline are greatly heightened by the numerous remains of antient fortresses and castles; they were all dismantled soon after the capitulation of Milan*, from a recent experience, that the inability of the Grisons to provide them with sufficient garrisons, exposed them to the enemy, and rendered them for the most part a source of annoyance rather than protection. It might be imagined, that some of these fortresses ought to have been retained for the purpose of aweing the inhabitants: such an implicit confidence, however, is reposed by the Grisons in the guaranty of the country by the House of Austria, that they do not maintain a single soldier throughout the whole Valteline.

LETTER LXXVIII.—*Commerce.—Productions.—Population.—of the Valteline.*

THE chief commerce of the Valteline is carried on with Milan and the Grisons. The principal exports are wine and silk, which turn the balance of trade in its favour; they enable the inhabitants to exist without any manufactures, and help to supply the money which is exacted by the governors.

The wine is sent into the Grisons, Germany, the Venetian states, Bormio, and occasionally to Milan. Upon a rough calculation 73,000 soma, or horse-loads, are annually exported: this year the soma sold for a pound sterling, which may be considered its average value. The silk is sent to England, Zurich, and Basle. The district of Delebio and Talamara produces the finest silk, the neighbourhood of Sondrio the next in quality, and the district of Tirano supplies an inferior sort. Three thousand pounds of the finest sort, which is esteemed as good as the silk procured from Piedmont, is sent annually to England by way of Ostend. The greater part is wound in the Valteline, for which purpose there are silk mills in the principal districts.

Besides these commodities, the Valteline exports planks, cheese, butter, and cattle. The inhabitants receive from Milan, corn, rice, salt, and filken stuffs; from Germany and Switzerland cloth and linen; from Genoa, spices, coffee, and sugar.

There are no manufactures in the Valteline, and almost all the mental trades are exercised by foreigners.

The population of the Valteline may be estimated from the following rough sketch:

Upper District contains	-	-	20,000 souls.
Government of Teglio	-	-	8,000
Middle District	-	-	18,000
Lower District	-	-	16,000
Total			62,000

* See Letter 89.

The cottages of the peasants, which are built of stone, are large, but gloomy, generally without glass windows: I entered several, and was every where disgusted with an uniform appearance of dirt and poverty. The peasants are mostly covered with rags, and the children have usually an unhealthy look, which arises from their wretched manner of living. The last year's drought occasioned such a scarcity of provisions, that the poor inhabitants were reduced to the most extreme necessity. The price of bread was unavoidably raised so high, that in many parts the peasants could not purchase it; and their only food was for some time a kind of paste, made by pounding the hulls and stones of the grapes which had been pressed for wine, and mixing it with a little meal. Famine, added to their oppressed situation, reduced the inhabitants to the lowest condition of human misery, and numbers perished from absolute want. But it is a pleasure to reflect, that they are in some measure relieved by the plentiful harvest of the present year.

Perhaps no part of Europe is more fruitful than the Valteline, and yet there is no country in which the people are more wretched. Many reasons may be assigned for the misery to which they are reduced. The first and principal cause is the form of government. The governors generally abuse the exorbitant authority entrusted to them by the laws; the peasants are imprisoned upon the slightest information, and as all transgressions are punished by fines, an accused person is seldom acquitted; so that a considerable number are annually ruined in the courts of justice.

Beside the individuals who are supposed to suffer for their own guilt, the parishes are subject to continual assessments, towards defraying the expences for the trial and imprisonment of the poor parishioners: if they are unable to pay the sum required, it is demanded from the parish to which the criminal belongs. In this case it frequently happens, that the assessments, instead of being laid upon the landholders, are imposed upon each hearth, by which means the chief burden falls upon the poor.

Another cause of wretchedness proceeds from the present state of property. Few of the peasants are landholders; as from the continual oppression under which the people have groaned for above two centuries, the freeholds have gradually fallen into the hands of the nobles and Grisons, the latter of whom are supposed to possess half the estates in the Valteline. The tenants who take farms do not pay their rent in money, but in kind; a strong proof of general poverty. The peasant defrays the costs of cultivation, and delivers near half the produce to the landholder; the remaining portion would ill compensate his labour and expence, if he was not in some measure befriended by the fertility of the soil. The ground seldom lies fallow, and the richest parts of the valley produce two crops; the first is wheat, rye, or spelt, half of which is delivered to the proprietor; the second is generally millet, buck-wheat, maize, or Turkey-corn, which is the principal nourishment of the common people; the chief part of this crop belongs to the peasant, and enables him in a plentiful year to support his family with some degree of comfort. Those who inhabit the districts which yield wine are the most wretched; for the trouble and charge of rearing vines, of gathering and pressing the grapes, is very considerable; and they are so apt to consume the share of liquor allotted to them, in intoxication, that, were it not for the grain intermixed with the vines, they and their families would be left almost destitute of subsistence.

Besides the business of agriculture, some of the peasants attend to the cultivation of silk; they receive the eggs from the landholder, rear the silk-worms, and are entitled to half the silk. This employment is not unprofitable; for although the rearing of the silk-worms is attended with much trouble, and requires great caution; yet as the occupation is generally entrusted to the women, it does not take the men from their labour.

With all the advantages, however, derived from the fertility of the soil, and the variety of its productions, the peasants cannot, without the utmost difficulty, and constant exertion, maintain their families; and are always reduced to the greatest distress, whenever the season is unfavourable to agriculture.

To these causes of penury among the lower classes, may be added the natural indolence of the people, and their tendency to superstition, which takes them from their labour. Upon the whole, I have not, in the course of my travels, seen any peasantry, except in Poland, so comfortless as the inferior inhabitants of this valley. They enjoy indeed one great advantage over the Poles, in not being the absolute property of the landholder, and transferable, like cattle. They are therefore at liberty to live where they chuse, to quit their country, and seek a better condition in other regions; a relief to which distress often compels them to have recourse.

Chiavenna, August 15.

I quitted Sondrio yesterday afternoon, and went up to the valley of Malenco; yielding vines, chesnut-trees, rye, oats, and pasturage. As I ascended, the sides of the mountains were clothed with birch and firs; and their summits produced nothing but a scanty herbage. The inhabitants of this valley appear healthier, better clothed, and more industrious, than the other peasants of the Valteline. In consequence of their distance from the seat of government, they are less exposed to the rapaciousness of the Grison governors, and for the most part possess a small portion of land. The valley is narrow, and watered by a torrent, which forms a continued cataract; the road is a faint path, by the side of a precipice, and carried over huge fragments of rocks. I passed the night in a solitary hut at the bottom of the Muret; the next morning mounted a rugged ascent in the channel of a small stream, observed nothing but bare rocks, without the least appearance of vegetation, came to the top of the Muret, and traversed a large mass of snow and ice.

In these alpine situations the traveller sees within the space of a few hours, nature in all her shapes; in the Valteline rich and fertile; here barren and stupendous. These regions are so dreary and desolate, that were it not for an occasional traveller, the flights of a few strange birds, the goats browsing on the rugged alps, and the shepherds who tend them, nature would appear quite inanimate. In these elevated spots, while I was

“ Placed above the storm's career,”

I noticed the pleasing effect produced by the vapours and mists floating in mid air beneath me; circumstances finely felt and described by the author of the Minstrel:

‘ And oft the craggy clift he lov'd to climb,
‘ When all in mist the world below was lost:
‘ What dreadful pleasure there to stand sublime,
‘ Like shipwreck'd mariner on desert coast,
‘ And view the enormous sea of vapour, tost
‘ In billows lengthening to the horizon round,
“ Now scoop'd in gulphs, with mountains now emboss'd!”

From the top of the Muret I descended about three hours a craggy, desolate, and uninhabited country, and noticed the gradual increase of vegetation as I approached the road leading to Chiavenna, a little above Casazza. This passage over the Muret, which serves for the transportation of wine and other merchandise from the Valteline to the Grisons is only open about five months in the year.

LETTER

LETTER LXXIX.—*Chiavenna.—Valley of St. Giacomo.—Chapel of St. Guglielmo.**Chiavenna, Sept. 16.*

MY correspondence with you has been for some time interrupted! The day after my arrival from the Valteline, I was seized with a lassitude which I attributed to the fatigue of journey; it ended in a violent pain and swelling of my right hand, the effects of a rheumatism, which probably seized me the night I passed at the bottom of the Muret: not being able to procure a bed, I slept in the hayloft, and suffered much from the piercing north wind, which blew from the glacier. I likewise imprudently walked the next morning, without intermission or refreshment, for the space of seven hours, from the top of the Muret to Bondo; so that the cold and fatigue brought on a rheumatic complaint which has detained me six weeks. During great part of the time I wore my arm in a sling, and was incapable of writing a line. What I most regret in this delay is, that I have been prevented from attending the general diet of the Grisons, which was held at Davos the latter end of last month.

The county of Chiavenna came under the sovereignty of the Grisons in the same manner, and at the same time with the Valteline. During the war of the Valteline it frequently changed its masters, but at the peace of Milan was finally restored to the Grisons. It is ruled, like the other subject provinces, by a Grison governor, who is called commissary, and in a few instances is even less limited in his power than the judges of the Valteline.

The criminal court of justice is formed by the commissary, and the assessor, who is appointed by the commissary, from three candidates nominated by the county. He must attend all examinations, concur in ordering torture for the conviction of a criminal, be present when it is inflicted, and ratify the final sentence; but as the assessor owes his place to the commissary, and shares in his exactions, he is a mere cypher, and seldom ventures to exert his right of interposing a negative. This circumstance renders the courts of justice in Chiavenna more uniformly iniquitous than even those of the Valteline; for the close union between the commissary and assessor almost precludes a chance of redress, and gives unbounded scope to oppression. It would be unnecessary to describe the mode of proceeding established in this court of justice, as it is similar to that of the Valteline. In civil causes the commissary receives five per cent. of the contested property, and an appeal from his decision may be submitted to the syndicate.

Chiavenna, the capital, is situated at the foot and upon the side of a mountain, and contains about three thousand souls. The inhabitants carry on but little commerce; the principal article of exportation (excepting the stone pots mentioned in a former letter *) is raw silk, of which the whole country produces about three thousand six hundred pounds. A manufacture of silk stockings, the only one in the town, has been lately established. The neighbouring country is covered with vineyards, but the wine is of a meagre sort, and only a small quantity exported. The great support of Chiavenna is the transport of merchandize; this town being the principal communication between the Milanese and Germany, and from hence the goods are sent either by Coire into Germany, or through Pregalia and the Engadinas into the Tyrol. A duty is laid by the Grisons upon all the merchandize which passes through Chiavenna, but is so small that the whole customs, including those in the Valteline, are farmed for 17,000 florins, or about £1260 per annum.

* See Letter 69.

The principal object of curiosity in the environs is the fortress in ruins, seated upon the summit of a rock, which overlooks the town, once celebrated for its almost impregnable strength. The only road which leads up to it is steep and craggy; the walls occupy a large space of ground, and are now covered with vines. The strongest part of the fortress was constructed upon an insulated rock, rent, as some persons conjecture, from the contiguous mountain, by a violent convulsion of nature. It is on all sides absolutely perpendicular, and the only communication with the castle was by a draw-bridge thrown across the intervening chasm. Others * suppose that the separation of this rock was the work of art, and affirm that it was excavated in 1343, by order of Galeazzo Visconti. The length is above two hundred and fifty feet, the height about two hundred, and the greatest distance from the adjoining rock about twenty. This fortification, though always deemed impregnable, was taken at different periods, sometimes by assault, but more frequently by famine or stratagem; it was finally demolished by the Grisons themselves.

Close to Chiavenna is a rock of asbestos, a kind of mineral substance, of a greyish silver colour, which can be drawn into longitudinal fibres as fine as thread, and was manufactured by the ancients into a species of cloth resembling linen: it is frequently mentioned by Pliny, and being indestructible by fire, was principally used for shrouds, to preserve the ashes of the dead bodies separate from those of the wood. The art of weaving asbestos into linen is not lost; but, as it is very troublesome and expensive, and as the custom of burning bodies, which gave it a value, is no longer in use, the manufacture is discontinued. Besides the rock of asbestos near Chiavenna, several other mountains yield the same substance; the best sort is found in the mountains that border the valley of Malenco, of which I have seen many fine specimens.

Quitting Chiavenna I entered the valley of St. Giacomo, which is narrow, and watered by the torrent Lira. It is part of the county of Chiavenna, contains about ten parishes, is under the jurisdiction of the commissary, and possesses several important privileges that preserve the inhabitants from the oppression which their neighbours endure. All causes are tried in the valley. The criminal statutes are those of Chiavenna, with this difference only, that, instead of the assessor, the valley chooses four persons, who are always present at the examination; and without whose concurrence torture cannot be inflicted, nor sentence passed. The valley has its own code of civil jurisprudence, and courts independent of the commissary, from the decision of which an appeal lies to the diet.

The lower part of the valley produces vines and corn; the upper, rye, barley, and pasture, mixed with large groves of fir and pine. On my left I passed the church of St. Guglielmo, supposed to have been erected in honour of William King of Sicily, the last sovereign of the male branch of the Norman line, which commenced in Count Roger, who conquered Sicily from the Saracens in the latter end of the eleventh century.

Roger was twelfth son of Tancred de Hauteville, a Norman Baron, and brother of the celebrated Robert Guiscard, the bravest of those brave Norman adventurers who sallied from their native country, formed a flourishing but temporary establishment in the southern parts of Italy, and furnished by their exploits ample materials for history and romance. The son of Count Roger, who inherited the name and spirit of his father, erected Sicily into a kingdom: and, at the extinction of the male line of Robert

* We may perhaps reconcile these two opinions, by admitting that the opening was originally occasioned by a violent convulsion of nature, but afterwards enlarged by art.

Guiscard in the person of William, Duke of Apulia, annexed Apulia and Calabria to Sicily, and reigned over those territories, under the title of the Two Sicilies, which now comprehend the present kingdom of Naples and Sicily. The throne of Roger was successively filled by his son William the First, surnamed the *Bad*, and by his grandson William the Second, distinguished by the name of *Good*. On the demise of William the Good without issue male, the Sicilians excluded Constantia, daughter of Roger, and wife of the Emperor Henry the Sixth, and elected Tancred, illegitimate grandson of the first King. Tancred dying in 1193, William, his only surviving son, was crowned while an infant. Being dethroned by Henry the Sixth, who claimed the Two Sicilies in right of his wife Constantia, he was imprisoned with his mother Sibilla, in the fortress of Ems, near Coire. Some authors assert that he was deprived of his sight, others that he was mutilated by order of Henry. Some relate that he died in prison, others that he was released together with his mother Sibilla; that he accompanied her to France, but, disgusted with the world, retired to this spot, passed the latter part of his days as an hermit, with great reputation of sanctity, and was canonised after his death. Such contradictory accounts occur frequently in the history of the dark ages. Muratori, who, from his knowledge of the ancient records of those ages, is the most capable of solving this difficulty, leaves the question undecided; but seems inclined to believe, that William was released from his captivity, and afterwards turned hermit.

I shall subjoin a genealogical table of the Norman line, which is very complicated and obscure, and erroneously represented by many writers.

I employed three hours in mounting from Chiavenna to the pleasant plain of Campo Dolcino, and ascended from the extremity of that plain to Ilola, the last village in the valley of St. Giacomo, from whence I am now writing.

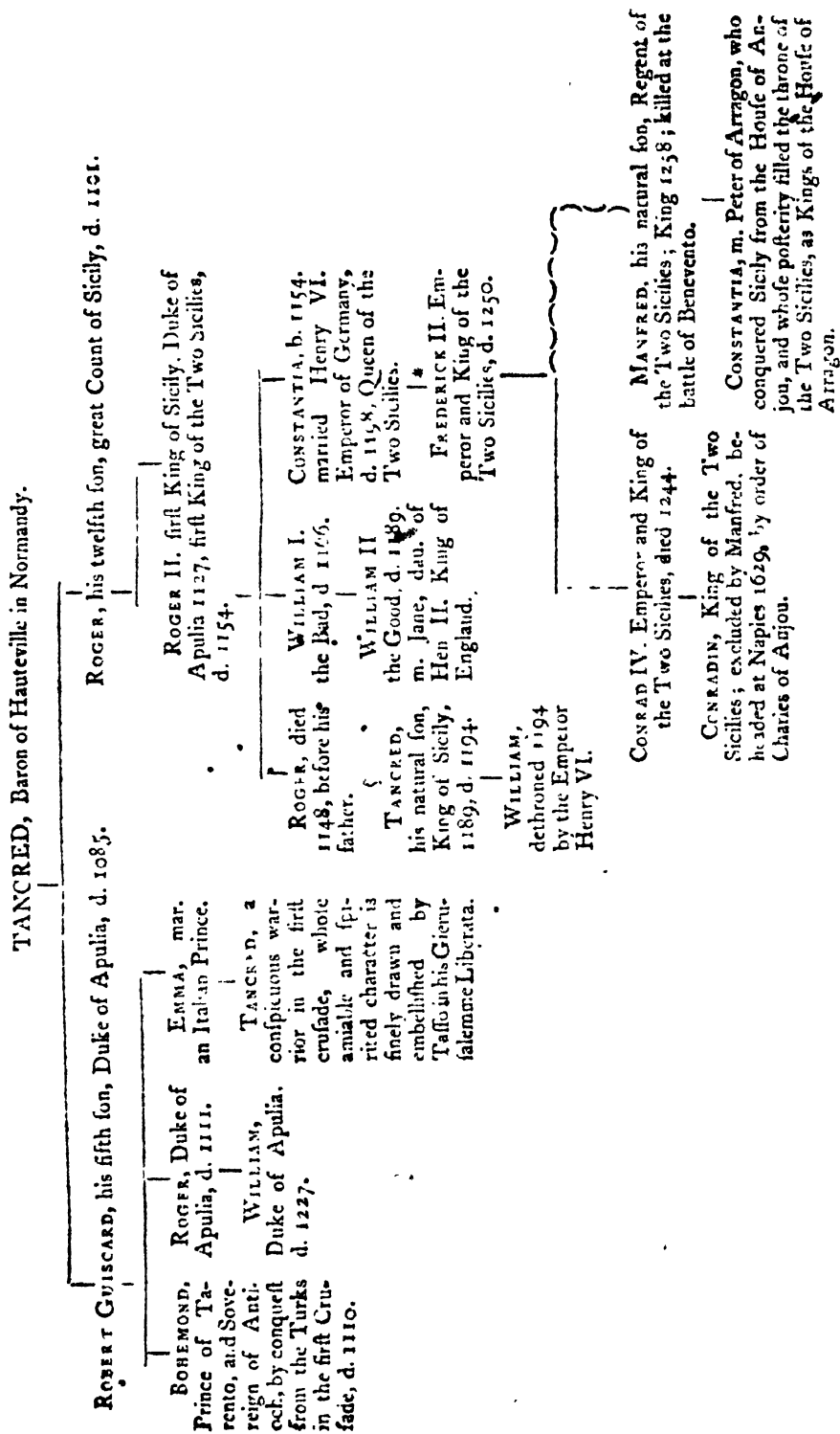
In these parts where mountains rise over mountains, and alps tower above alps, those fallings of snow, mentioned in a former letter *, under the name of *Avalanches*, are extremely common; they are justly and warmly described by the poet of nature †:

Among these hilly regions, where embac'd
In peaceful vales the happy Griscons dwell;
Oft, rushing sudden from the loaded cliff,
Mountains of snow their path'ring terrors roll.
From steep to steep loud thundering down they come,
A wintry waste in dire commotion all;
And herds, and flocks, and travellers and swains,
And sometimes whole brigades of marching troops,
Or hamlets sleeping in the dead of night,
Are deep beneath the smothering ruin hurld.

* Letter 31.

† Thomson's *Seasons*.

GENEALOGICAL TABLE OF THE NORMAN SOVEREIGNS OF NAPLES AND SICILY.



LETTER LXXX.—*Splugen.—The Grey League.—Rheinwald.—Via Mala.—Tufs.—*
Nicholas Rujca.

FROM Ifola the ascent is steep and rugged to the top of mount Splugen, and the torrent Lira roars from precipice to precipice in stupendous cataracts. The road is hewn in the solid rock, in many places it has the appearance of steps, in others is perforated through the mountain; in pursuing my way over this dreary track, I was frequently reminded of the road down the Gemmi *. Toward the summit of the Splugen is an oval plain, about two miles long and one broad, encircled with craggy points; it produces no trees, but yields rich pasturage; near the summit are rude blocks of a whitish kind of marble.

I baited my horses at a small inn which stands at the extremity of the oval plain, and is the only house between the valley of St. Giacomo and Splugen. Before the door I observed at least a hundred horses laden with merchandise; not less than three hundred are said to pass daily in this season of the year.

Gently ascending from this oval plain I observed the source of the Lira, which falls into the lake of Chiavenna, and soon afterwards crossed the highest ridge, on the other side of which the torrents flow towards the Rhine. The country is wild, and scarcely produces a single tree; as I descended firs began to make their appearance, at first thinly scattered over the rocks, and gradually thickening into large forests. This passage over mount Splugen is principally used for the transport of merchandise to and from Coire; it is kept open even in winter, though not without great difficulty; in that season the merchandise is chiefly transported on sledges, of which forty or fifty pass in a day.

The territory of the Grey League occupies all the eastern tract of this mountainous country, and is by far the most considerable, in extent as well as population, of the three Grison leagues. The etymology of the word Grigia or Grey, which gives its name to this league and the whole country, is extremely uncertain. Some authors have conjectured, that the people of this district were the original inhabitants of the country, and were called Grey, to distinguish them from the more modern inhabitants, grey hairs, an emblem of antiquity. Others, on the contrary, dating this appellation from more modern times, assert that the first authors of the revolution which, in 1424, gave liberty to the communities in the Grey League, were dressed in the coarse grey cloth of the country; and, in commemoration of this great event, the league was called Grey. This appellation, however, is of very high antiquity, and existed long before the revolution. Tacitus calls the inhabitants of this country *Rhetos Griseos, id est canos*; and Ammianus Marcellinus styles the district about Coire, *Canos Campos*, or the Grey Fields. Hence it appears how very fruitless must be any investigation concerning the true etymology of this word, which lies hid in remote antiquity, beyond the reach of our most inquisitive researches.

Without entering too minutely into etymological disquisitions, we may only remark in general, that the term Grisons, or Grey people, was the general name by which all the inhabitants of Rhetia were distinguished, and was not confined to that particular district called the Grey League. The appropriation of the term to that particular body may be thus accounted for. When the inhabitants of this district first rose in arms,

* Letter 33.

for the purpose of asserting their independence, they naturally styled themselves, the League of the people called Grisons, or the *Grey League*; while those of the two other districts, who afterwards formed similar associations, although equally known by the name of Grisons, took other appellations to distinguish themselves from the first confederacy.

The territory now occupied by the Grey League was formerly subject to the Abbot of Disentis, the Counts of Werdenberg, of Sax, of Masox, and the Baron of Retzuns. The people seem to have originally possessed considerable privileges, which were gradually undermined, and occasionally violated by their chiefs and barons, who, being engaged in perpetual hostilities with each other, laid great exactions upon their subjects, in order to pay their troops. At length, the people, impatient of oppression, and excited by the example of the neighbouring Swiss republics, determined to deliver themselves from the grievous subjection under which they laboured.

The meeting of the insurgents was by no means attended with any unwarrantable excesses, natural to an enraged populace, but was conducted with the greatest composure. The leading members of the several communities having previously concerted the plan, a solemn deputation was dispatched to the respective sovereigns assembled at Truns; the deputies laid the grievances before the chiefs, from whom they not only extorted redress, but procured a confirmation of several obsolete privileges, and the addition of many others. In consideration of these concessions, the chiefs reserved to themselves certain prerogatives, which some of their descendants or successors possess at this day; a distinction which is now peculiar to this league, and renders the general constitution in some respects more aristocratical than that of the two others.

These prerogatives consist in being present at the annual diet of the league, and in alternately proposing three candidates for *Landrichter*, or chief of the league, from one who is nominated by the deputies. The Counts of Wirtemberg being extinct, these prerogatives are now confined to the Emperor of Germany, as Baron of Retzuns, the Abbot of Disentis, and the temporary Count of Sax. No real Count Sax now exists; for, upon the extinction of that family, certain communities * of the Grey League seized the domains, and continue to exercise the rights which were formerly enjoyed by the Counts of Sax.

The mode of creating a titular Count is as follows: A few days before the meeting of the diet of the league assembled at Truns, the communities in question reciprocally elect a person who represents the Count. He is called in Romanish † *Cau de Sax*, and, although not unfrequently a common peasant, sits at the diet upon the same bench with the representative of the House of Austria and the Abbot of Disentis, is addressed by a title equal to his supposed dignity, nominates the *Landrichter* every third year, and, having discharged his office, sinks at the expiration of a few days into his ordinary rank.

Another distinction peculiar to the Grey League ought not to be omitted. Like the other leagues, the particular districts possess their courts of criminal justice in the last resort; but in all civil causes above a certain value, an appeal lies to sixteen deputies annually assembled at Truns; I only mention the fact in this place, but shall have occasion to enlarge upon it in a future letter.

Splügen, situated upon the rise of an hill, at the bottom of a rugged chain of alps, is the principal place in the valley of Rheinwald, which forms a high jurisdiction of the

* These communities are Lungnetz and Vals, Ilants and Grub, Flims and Castis.

† Literally head of Sax. *Cau* is supposed to be a corruption from *cabul*.

Grey League. The Rheinwald is so called from the Hynder Rhine, which takes its rise upon the Vogelsberg, at the distance of twelve miles, and runs through this valley. It was my intention to visit this source, but my late indisposition will not permit me at present to take fatiguing journeys in these mountainous regions.

The inhabitants of the Rheinwald speak German, although they are entirely surrounded by people who use a different language. Towards the south, beyond the mountains of Splügen and St. Bernardin, in the valleys of St. Giacomo and Mafox, Italian is the common tongue; towards the north and east, in the valleys of Schams, of St. Peter, and of Lugnetz, Romanth is spoken. This remarkable circumstance has led many authors to conjecture that the people of this and other districts of the Grisons, who talk German, are descended from the *Lepontii*, supposed to be a Celtic nation, and considered as the original inhabitants of this country, before the establishment of the Rhetians. But this conjecture is not founded on facts, for, although the inhabitants of this district are immediately encircled by people who talk Italian and Romanth; yet the German language is spoken at Avers, Cepina, Tufis, and Furstenau, which are only at a small distance from the Rheinwald.

I quitted, on the other side of mount Splügen, the Italian climate and productions; the air of this valley is so piercing as to justify the truth of the proverb, "Nine months winter and three months cold." Two high roads meet at Splügen, one from Chiavenna, which I traversed yesterday, the other leads over the Bernard into Bellinzona. From Splügen to Arder the road continues by the side of the Hynder Rhine, through a mountainous region, which presents at every step the most awful magnificence of scenery.

The inhabitants of Suffers, the last village of the Rheinwald, talk German; and at a small distance I entered the valley of Schams, where the peasants speak Romanth. I made myself tolerably understood by a kind of jargon, composed of German, Italian, and Romanth. I took out my vocabulary of the Engadina language, and compared the different modes of expression and pronunciation. The inhabitants call their language Romanth; but it differs widely from the Romanth spoken in the valley of Surlet, and still more from that of the Engadinas. The Bible and other books used in this valley are in the same dialect as those which are read in the other parts of the Grey League, and the language is similar, with a small variety in the pronunciation.

The valley of Schams, a community of the Grey League, contains eight or nine inconsiderable burghs or villages, situated at small distances upon each side of the Rhine; and is much lower and more fruitful than the Rheinwald. I crossed the Rhine at Zillis, leaving on my left hand Donat, where the collective body of people meet annually to choose their magistrates, and regulate all civil and political affairs. Soon afterwards I came into the *Via Mala*, so called from the supposed difficulties and dangers of the passage. Such dreadful descriptions have been given by different travellers, that I expected to find it the worst road which I had hitherto travelled. But I was agreeably deceived, for it was not more incommodious than the way from Splügen to Anders; nor did I once think it necessary even to dismount from my horse, except when I stopped to take a nearer view of any particular scene; the road even admits carriages. No reason occurs to me, why this particular way should be distinguished by the appellation of *Via Mala*, unless it alludes to former times, and modern writers have adopted them as the mere echos of ancient travellers. Perhaps the peculiar gloom of the valley, through which the road passes, may have helped to convey these ideas of terror to persons not accustomed to alpine regions.

The Via Mala runs through a dark and solitary valley, **overspread in many parts** with thick forests, which add to a kind of twilight gloom, and so exceedingly narrow, that the steep rocks which enclose it hang over, and seem almost to meet towards their summits. The Rhine foams at the bottom, sometimes so visible, and sometimes faintly glimmering through

— darksome pines, that over the rocks are held

Wave high, and murmur to the hollow wind

For.

About three miles from the commencement of the Via Mala, is a stone bridge, a single arch, thrown across a gulf; a sublime scene, which I stopped to admire, and which I left with regret. The Rhine falls in a beautiful cascade, falls in a narrow channel at the depth of above four hundred feet, suddenly dashes over the brink, expands itself into a wide basin, and then is lost under a rock, through which it has forced a passage. The impending mountains, partly bare and partly embrowned with firs, cast an awful gloom over the gulf beneath.

I here was greatly struck with one circumstance, which I had observed in several other valleys of Switzerland, but never in such perfection as in this place. The Rhine, which is at present about four hundred feet below the bridge, seems to have once flowed as high, or even higher than the present bridge, but, in the lapse of ages, gradually worn away the rock, and excavated the deep channel in which it now runs.

Having passed the bridge, I went through a subterraneous opening a few paces in length, which had been cut in the overhanging rock, and a little further crossed a second bridge similar to the first.

Soon afterwards I quitted the Rhine, and began ascending. This part of the country is entirely uninhabited, and I did not meet with a single house until I reached Roncalia, a village in the community of Tufis, upon the top of a steep mountain. From thence I descended to Tufis, situated near the torrent Nolla, at the beginning of the valley of Tomaliasca, and said by antiquaries to have been built by the Tulsans, when they took refuge in these parts under Rhaetus.

Tufis is well known in the history of the Grisons for the *Synod*, or council of justice, which sat in 1618, for the trial of persons accused of holding a correspondence with Spain, and of opposing the introduction of the Protestant religion into the Valteline. Amongst those who suffered in this iniquitous tribunal, the most remarkable was Nicholas Rusca, whom I mentioned in my Letter on the trouble of the Valteline, the cruel circumstances of whose death excited the resentment of the Catholics, and occasioned an open rebellion.

Nicholas Rusca, a native of Bedano, in the bailliage of Locarno, was educated in the Jesuits' college at Milan, at the expence of Cardinal Borromeo, and made so great a progress in his studies, that, in 1589, he was appointed principal of the church of Mondrè, although only in the twenty-fourth year of his age. He immediately distinguished himself by his zeal in preaching against the reformed doctrine, and was one of the disputants who supported the Roman Catholic faith against the Protestant ministers in two public conferences held at Tirano in 1595, and the following year. His character has been placed in the most opposite lights by the respective historians of the two contending parties; by the one he is represented as a saint, and by the other as an assassin. But if we examine his life with impartiality it will appear, that, though he was hurried on by a violent spirit of fanatic zeal, yet he cannot be supposed guilty of the atrocious crimes which his enemies have laid to his charge. Soon after his promotion to the benefice

nected of Sondrio, a misunderstanding arose between him and the Protestants, which gradually increased during the violence of the religious disputes, and was carried on the following occasion to the highest degree of animosity.

One Chiappinus, and three gondoliers of Venice, were arrested under suspicion of a design to assassinate Scipio Calandrinus, the Protestant minister of Sondrio, at the instigation of Rusca; a confession of guilt and of Rusca's privacy being drawn from Chiappinus by the force of torture. The governor of the Valteline referring the affair to the diet of the Grisons, Rusca was cited before that assembly, but declined to appear; either, as his enemies pretend, from a consciousness of guilt, or, as his friends allege, from a dread of the Grisons, who were intended against him. Having escaped from the Valteline, he waited at Bormio while his cause was publicly pleaded before twelve judges deputed by the Grisons. Being acquitted, he returned to Sondrio, where his zeal, inflamed by his late prosecution, continued to display itself by an unremitting opposition to the establishment of a Protestant school at Sondrio; a favourite measure of the opposite party.

His enemies, baffled in their first attempt, brought against him a charge of a more public nature: they accused him of opposing the decrees of the Grisons, and of exhorting the inhabitants of Morbegno not to bear arms against the King of Spain, the protector of the Catholic religion. In consequence of these insinuations, a troop of sixty Grisons arrived at Sondrio by night, and, seizing Rusca, carried him to Tufis, where he was not only impeached of high treason in the temporary court of justice there assembled, but was again examined, contrary to every principle of equity, for abetting the assassination of Calandrinus; and as he peremptorily denied these charges, he was condemned to the torture; which horrid sentence was three times inflicted in the dead of night. The execution of the sentence failing to extort the smallest confession of guilt, he was, on the following night, twice subjected to a repetition of the same dreadful process. Being of a weak frame, and full of infirmities, he was overcome by excess of agony, and expired amidst the torments*.

Some writers have asserted that Rusca died of poison, which he had taken previous to his last examination; but this supposition seems to be totally devoid of foundation, and was only advanced in order to rescue the judges from the odium of having tortured him to death. For when it is considered that, according to the common mode of applying torture in this country, he was five times drawn up by a pulley, with his arms tied behind, so as to occasion a dislocation of his shoulders; that he remained in that excruciating position above half an hour each time, and that he was in an infirm state of body, we have no occasion to seek for any extraordinary cause of his death.

The advocates for the Protestant party in vain endeavour to exculpate Rusca's judges from an intolerant spirit of bigotry, by asserting that the whole transaction was a civil and not a religious process; for theological rancour, however disguised under the mask of patriotism, was the leading motive to this prosecution. Independently indeed of all theoretical reasoning, every rational Christian, whatever his persuasion may be, must recoil with horror from enormities so inconsistent with the first principles of humanity,

Die dominica, quæ Augusti 22 erat, ter sine tamen pondere elevatus fuit; perstititque in negotio, sæpius misericordiam Dei ac hominum implorans, quas voces dolor tormentorum ipse exprimebat, erat enim homo crebris febribus vexatus, ac proinde sustinendi tolerantiam imposita erat. Sequente die luna, facies illi velo obtegatur, ne a quoquam signum habere videretur ullum, et bis atque tamen pondere elevatur: tumque observatus est spiritus deficere, et cum solvereur torti a jure exspiraverat, tenens linguam dentibus admodum sic ut sanguis adpareret. Aporta Hist. Reform. Eccl. Rat. vol. ii. p. 268, 269.

and to contradictory to the meekness of that religion, which ought to be the rule of our actions*.

LETTER LXXNI.—*Valley of Tomliasca.—Retzuns.—Reicherau.* *

Coire, Sept. 21

FROM Tüsis I continued my route along the valley of Tomliasca, by the side of the Rhine, which here separates the Grey League from that of the House of God†; numerous towns, villages, and castles‡, lie agreeably scattered through the vale in the most romantic situations. Passing through Catzis, and leaving on my left the fruitful mountain of Stenzenberg, called in Romanish *Montagnia*, and remarkable for its fertility and population, I proceeded to Retzuns, and turned to the castle of that name, which makes a conspicuous figure in the history of the Grisons. Antiquaries derive the name of Retzuns from *Rhatius* or *Rhetia Ina* (Lower Rhetia), and give the following account of its construction: In the early ages of the Roman history a numerous army of Gauls overran Lombardy, which was then occupied by the Tulcans. A considerable body of whom driven from their native country followed their leader Rhætus, and established themselves in these alps. Rhætus gave his own name to the whole region, and constructed a fortress which he called *Rhetia Ina*, since corrupted into Retzuns. Livy relates the emigration of the Tulcans into these parts without mentioning the name of their leader, who is called Rhætus by Pliny and Justin; and the number of places still existing in these alps, which bear a resemblance to that appellation, seem strong testimonies in support of this account.

But as events of such high antiquity are liable to much doubt, let us descend to later times, which admit of no dispute. The castle was the residence of a baron, who possessed the adjacent territory, and was called Baron of Retzuns. His name frequently occurs in the ancient history of this country, when the territory of the Grisons was divided into several petty sovereignties. He is also mentioned among the chiefs, who assembled in 1424 at Truns, and enlarged the privileges of the people, when the communities united and formed the Grey League. At that time the Baron reserved to himself certain prerogatives, which are now possessed by his successors. In 1459, the male line being extinct, the barony descended to a collateral branch, and in 1470 came by purchase into the possession of the Emperor Maximilian the First. Ferdinand the First mortgaged the barony for 14,000 florins to John Planta, in whose family it continued until the year 1679, when it was redeemed by the Emperor Leopold, and it now belongs to his granddaughter Maria Theresa, the present Empress. The revenues of this territory are very small, amounting to 2000 florins, or scarcely £200 per annum; but, by the possession of it, the House of Austria enjoys considerable influence in the political affairs of the Grisons. The delegate of the Empress, who is called Administrator, has a vote in the diet of Truns, and nominates every third year the *Landrichter*, or Chief of the Grey League.

Being desirous of seeing the castle, I sent my compliments to the Austrian delegate, who instantly made his appearance, and politely attended me. The present building

* Aporta, with the impartiality of an honest historian, speaking of the iniquitous acts of this tribunal, says, "*Deum immortalē! Quid est carbonis irritare, hostes studio conquerere ac in se concitare summis inia mittere, si hoc non erat? Nullus tamen actus majorem huic tribunali invidiam concitavit quam judicium Nicolaï Rusce, qui tormentis solutus sub judicium oculis expiravit*" Hist. Rel. Eccl. Ret. vol. ii. p. 166

† Guler, the historian of Rhetia, says, that no region of Europe contains such a number of ancient castles as the country of the Grisons; and adds, that, in the small valley of Tomliasca, not more than a German mile long, and a quarter broad, there are more than seventeen.

was raised by Leopold the First, upon the foundation of the ancient structure, of which there are scarcely any remains; and I could not discern the slightest traces of Roman workmanship.

The castle is the usual residence of the Austrian envoy to the republic of the Grisons; but as the present envoy dwells in his own house at Reichenau, is now occupied by the Austrian delegate. It is situated upon an eminence, and commands a fine view of the adjacent country; the rich plain, which extends as far as Reichenau, is bounded on all sides by high mountains, and yields, among other productions, abundance of wheat; the Lower Rhine flows through it in a wide and stony channel.

The delegate finding, during our conversation, that I had a letter of recommendation from Count Firmian to the envoy at Reichenau, invited me to dinner, and politely offered to accompany me in the afternoon to Reichenau; an invitation which I made no scruple to accept. The company at table consisted of the delegate, his wife, and a capuchin friar. The lady spoke nothing but Romanish, so that I was not able to enjoy much of her discourse; I could only drink her health, and make her a short compliment, which I had learned by rote. But I held a long conversation, in the French tongue, with the delegate, upon the barony of Retzuns, on which subject he kindly gave me much information. The barony comprises the villages of Retzuns, Bonadutz, Embs, and Feldsberg, which form a high jurisdiction in the Grey League, and send two deputies to the general diet of the Grisons: the people are free; they assemble annually in the court of the castle to elect their magistrates, and every male at the age of fourteen has a vote. As delegate of the Emperors of Germany, he has a kind of territorial jurisdiction over the village and district of Retzuns. He nominates the Landamman from three candidates appointed by the people; the Emperors receive the fines for criminal offences, and pay the expences of the process; the prisoners are confined in the castle, but are tried by judges chosen by the people.

After dinner I accompanied my host through a rich and fertile plain to Reichenau, and waited upon M. Buol, the Austrian envoy, who received me with great politeness, and obligingly invited me to remain some time at Reichenau; an invitation I declined for the present, through my impatience of arriving at Coire, where I expected to receive several letters from my friends in England, from whom I had not heard since my departure from Milan. Reichenau is situated upon the conflux of the two branches which form the Rhine. The lower branch is the same which I followed during the greater part of its course from Splügen; the upper branch rises near the mountain of St. Gothard, and flows through the valley of Sopra Selva. The castellated mansion of M. Buol stands in a most romantic situation upon a small eminence backed by a perpendicular rock, and between two singular bridges constructed by the nephew of Grubenman. One, which is thrown across the lower branch, measures about a hundred and five feet; the second, built across the river below the point of union, forms a most beautiful object. It is a wooden bridge of a single arch, covered like that of Schaffhausen, and constructed upon the same principle, with this difference however, that the road is not carried in so perfect a level; the span of the arch is two hundred and twenty feet. As the banks of the Rhine in this spot are more elevated than at Schaffhausen, the bridge of Reichenau is raised considerably higher above the surface of the water*; and as it presents to the eye but a single curve, the general appearance is far more picturesque, and the effect more striking. But it is not so beautiful a piece of architecture as the bridge of Wettingen, which is Grubenman's master-piece†. The

* Letter 2. p. 5.

† See Letter 13.

more I examine these bridges, the more I am struck with the simplicity of the structure; the more I am astonished, that the person who first conceived the plan was a common carpenter, and totally unacquainted with the theory of mechanics.

In my way from Reichenau to Coire, I inquired at Embs for the remains of an old castle, in which William, son of Tancred king of Sicily was confined: at present there is not the smallest vestige of such a fabric; but according to the tradition of the country it formerly stood upon a hill, whereon the church is now erected.

The valley from Reichenau to Coire is two miles broad, and produces corn, pasture, and some vines, which begin to make their appearance near Embs. The Rhine flows through it with the rapidity of a torrent; several insulated rocks are scattered on the banks of the river, some barren, others covered with wood, which greatly diversify the scenery. The chain of mountains fronting the northern aspect is overspread with groves of fir; while the opposite ridge is richly mantled with oaks, and its summit crowned with firs and pines. A little way beyond I entered the League of the House of God, and arrived at Coire.

LETTER LXXXII.—*League of God's House.—Town and Bishopric of Coire.—Convent of St. Lucius.*

THE whole territory, which is now comprised within the League of the House of God, was under the dominion of the Bishop of Coire; until the people, oppressed by their rulers, threw off the yoke, and forming a general league, compelled the bishop to ratify their independence.

The æra of this important revolution is not precisely marked in the annals of this country. Some historians have even asserted, that it happened so early as the latter end of the fourteenth century, and was anterior to the formation of the Grey League. But this opinion does not seem to be grounded upon sufficient evidence; as the facts alledged in its support intimate little more, than that the bishop granted several privileges to the inhabitants; but by no means prove, that the communities formed themselves into a league at such an early period, and afforded the *first* * example of liberty in these parts, an honour which is undoubtedly due to the Grey League. The revolution, which finally exalted this league into its present state of freedom, probably took place between 1424, the æra of the formation of the Grey League, and in 1436, the year in which the Ten Jurisdictions rose into independence.

This league is denominated in Romanish *La Ligia de la Chiada* †; in German, *Gottshausbund*, from which we call it the *League of the House of God*: it takes this appellation as well from the cathedral situated in its capital, as because it was once under the jurisdiction of the Bishop of Coire.

It is divided into eleven districts; each of which (Coire excepted) is sub-divided into two little republics, or communities, and sends twenty-two deputies to the general diet.

Formerly the burgomaster of Coire was perpetual chief of the league without election; but in the latter end of the last century the other communities claimed a power

* Campell espouses this notion, and his authority undoubtedly carries great weight; but we must consider that he grounds his opinion merely upon conjecture, and that, as a member of the League of God's House, he was inclined to give to that League the preference in point of antiquity over the Grey League.

† *Chiada*, or as it is sometimes written, *Ca-de*, signifies cathedral: hence the French call it *La Ligue Cathédrale*.

of nominating to this office in their turn. The affair being referred to the arbitration of Zurich, it was decided, that for the future the twenty-two deputies should chuse two candidates from the members of the Senate of Coire, who should draw lots for the charge; a mode of election now in use. The chief thus appointed is called *Bund-präsident*, and has several privileges which distinguish him from the chiefs of the two other leagues; he receives all the letters addressed to the Republic of the Grisons from foreign powers, and is perpetual president of the Congress, because that assembly is always held at Coire.

Coire is situated at the foot of the Alps, in a rich plain between two and three miles wide; a considerable breadth of valley for this mountainous country. Opposite is the chain of mountains which separate the country of the Grisons from the canton of Glarus; of this chain the Calender is esteemed the highest point; but it is far inferior in elevation to several of the Swiss and Savoy Alps I visited in my last tour, and wants one certain criterion of great height, perpetual snow.

The town lies partly in the plain, and partly upon the steep side of a rock, and is surrounded with ancient brick walls, strengthened with square and round towers, in the style of fortification, before the invention of powder; the streets are narrow and dirty; several towns of Upper Engadina, although not so large, make a neater and more elegant appearance. It contains about three thousand souls.

Many fables are related concerning the foundation of Coire; the most probable account seems to be, that it owes its origin to the Emperor Constantius, who, in the 355th year of the Christian æra, penetrated into Rætia, and fixed his station for some time near the present site of Coire. A town, as often happened on such occasions, was perhaps constructed near the camp; and from the imperial residence it is supposed to have derived the name *Curia*, its ancient appellation, since corrupted into *Coira* and *Coire*. The remains of two or three towers, which are evidently of Roman construction, attest its antiquity, and serve to establish the truth of these conjectures concerning its origin.

Coire was formerly a city of the German empire, subject to its own counts, and came in the ninth century under the dominion of the bishop. Like many other cities of Germany, it obtained considerable privileges from the different emperors; and the inhabitants, having gradually circumscribed the authority of the bishop, at length established an independent republic.

The government of Coire is aristo-democratical; the supreme legislative authority resides in the citizens, whose number amounts to two hundred and ninety-four, divided into five tribes. Each citizen has a vote at the age of twenty: the suffrages are never collected in a general assembly; but the object of deliberation is separately laid before each tribe, and decided by the majority of the five tribes.

The executive power is entrusted to the council of seventy, composed of fourteen members annually elected from each tribe. This sovereign council is divided into several lesser departments, of which the principal is the senate, or council of fifteen, who have the chief direction of affairs, either solely or conjointly with other members or the sovereign council. The chiefs of Coire are two burgomasters taken from the members of the senate, who, although liable to be removed, invariably continue in office for life. They enjoy the supreme dignity by rotation, each for the space of a year; during which term the acting chief, under the title of reigning burgomaster, presides in the usual councils. The criminal tribunal is composed of the senate and fifteen other members of the sovereign council. The prisoners are examined and the process drawn up by a secret council, formed of the seven oldest members of the senate, of whom the majority

majority must concur, to order the infliction of torture. After conviction the process is laid before the criminal tribunal, which ultimately passes sentence, and all offences excepting great crimes, are commonly punished by fines.

My curiosity led me this morning to the apartment in which the general diet of the Grisons is held every three years; although it contained no object worthy of description, yet it did not fail to strike my attention, as being the place where the parliament of a free nation is assembled.

Coire sends two deputies to this diet, who are generally the two burgomasters; but if one of these should be the chief of the league, the other deputy is chosen by rotation in the five tribes, with this condition, that he must be a member of the council of seventy.

From the apartment in which the diet is held I went to the town-hall, to see the form of administering the oath to the new *Bunds-president*. In general the ceremony takes place just before the meeting of the diet, in the presence of the deputies of the League of God's House; but as the person to whom the office now devolves was not present, it was necessarily postponed. All the parties being assembled, M. Tschärner, the last president, with the public notary, stood at the upper end of the room; his successor at the lower end, with the *Bunds-sekretär*, or secretary, dressed in a cloak half black and half white, the livery of the league. M. Tschärner addressed to his successor a short speech in German, acquainting him that he was appointed by the deputies of the league, *Bunds-president* for the ensuing year, giving him joy of his promotion, and congratulating the League upon the nomination of a person so well calculated by his integrity and abilities to fulfil the duties of the office. At the conclusion of this speech, the public notary reads the oaths for the president, for himself, and the secretary. M. Tschärner then told them to hold up three fingers of their right hand, and to repeat their several oaths; which ceremony being concluded, the new president declared that he was highly flattered with the honour conferred upon him, and would strive, as far as his abilities would permit, to promote the welfare of the League. Then the former president bowing, the new chief walked first out of the room; and thus ended the ceremony.

It is remarkable, that although the aristocratical party directs the nomination of the magistrates, president, and deputies, yet the appointment to the governments of the subject provinces is left wholly to chance. When the turn belongs to Coire, the five tribes meet separately, and a candidate is appointed by lot from each tribe. These five persons then draw lots for the office, and the successful candidate may sell the turn; with this restriction, that the preference of purchasing shall be given first to a member of the same tribe, secondly to any citizen of Coire, thirdly to an inhabitant of the League of God's House. It frequently happens, that the five candidates agree to divide the profits of the sale.

Upon the highest part of the town stands the bishop's palace, the cathedral, and the houses belonging to the chapter.

The bishopric of Coire was probably erected soon after the first establishment of Christianity in these parts, under Constantine, or his son. The diocese once extended over the whole Roman province of Rhetia, which comprehended the present country of the Grisons, the Valteline, Chiavenna, and Bormio, together with the eastern district of Switzerland as far as the lake of Constance, and part of Tyrol; the bishop's territorial possessions were also considerable, and his revenues by no means inadequate to his power and dignity. It would be uninteresting to trace the diminution of his authority, and the gradual annihilation of his jurisdiction over the town of Coire, and the common-

commonwealths of this League; I shall therefore observe, that his power was principally lessened by the formation of the League of God's House, and the limitation of his prerogatives in 1527: by the former he was compelled to ratify the independence of the communities; by the latter the principal prerogatives, from which he derived great influence in the political affairs of the Grisons, were at once annihilated; and he was reduced to the condition of a private person. These privileges principally consisted in having admission, and a vote in the general diet of the Grisons, in appointing several of the deputies, nominating the chief magistrates of several communities, and receiving appeals in civil causes from the decision of the provincial courts of justice. All these prerogatives were abrogated by a general diet of the Grisons in 1527, and the few remaining rights have been either purchased or suppressed. The introduction of the Protestant religion gave the final blow to his power; for his revenue suffered great diminution by the loss of the tithes, which were seized by the reformed communities.

The bishop is prince of the Roman empire; a dignity annexed to the see in 1170, by the Emperor Frederic the First, and is styled Lord of Furstenberg and Furstenau.

His annual revenues, which amount to about £2,000, arise chiefly from estates near Coire, and in the Tyrol; he receives also the annual sum of about £70 from the customs of Chiavenna, in return for having ceded his claims over the Valteline, Chiavenna, and Bormio, to the republic of the three leagues*. The only prerogatives remaining are the right of coining money, and an absolute jurisdiction both in civil and criminal affairs within the small district in which his palace and the chapter are situated. Beyond this district he enjoys not the least power; so far from interfering in the affairs of the town, he could not even enter it if the inhabitants chose to exclude him; a right which they asserted in 1764. A Catholic, to avoid an arrest, took refuge in the cathedral; and the inhabitants, inflamed by the bishop's refusal to deliver him up, raised a gate close to the only opening which leads into the episcopal district, by which means the avenue to the palace was closed; this manoeuvre conquered the bishop's obstinacy: the gate still exists, and is ready to be used upon a similar occasion.

The bishop is chosen by the chapter. Many disputes relating to his election have arisen between the canons and the League of God's House; the latter, in virtue of a treaty contracted in 1541 with the bishop, protests, that only a native of the League can be promoted to the see. But a foreigner being elected in 1692, the canons have since disregarded the right asserted by the League, and have without reserve given their votes to aliens, although the League remonstrates at every new election. The present bishop is Francis Dionysius, of the ancient family of Rost, in the Tyrol†.

The episcopal district is only a few hundred paces in circumference, and is surrounded by high walls; the greater part of the palace is modern, excepting a square tower, which is supposed to have been constructed by the Romans; it is of strong but clumsy workmanship, and in no degree entitled to notice, except as a monument of antiquity.

In the cathedral I observed no object of curiosity, unless the bones of St. Lucius richly ornamented after the fashion of Roman Catholic relics, should be thought worthy of attention. The chapter consists of twenty-four canons, of whom six are resident; the inhabitants of this district are all Catholics.

Above the palace, and at the highest extremity of the town, is the convent of St. Lucius, which takes its name from a small chapel dedicated to that saint, who, according

* See page 92.

† In 1794, Charles Rodolph Baron of Buol of Scharfstein was elected Prince Bishop of Coire.

to the legends of the Romish church, was a king in Britain in the latter end of the second century. Having embraced Christianity, and being inflamed with religious zeal, he quitted his throne, and wandering into these parts built an hermitage upon the spot where the chapel now stands, and by his preaching and example converted numbers to the gospel. He is styled the apostle of the Grisons, and is greatly revered as a saint by the Catholics; while the Protestants of the town pay him not the least veneration. Burnet, in his Travels, observes: "*I endeavoured to shew the good old bishop that the legend of Lucius was a fable in all the parts of it, but most remarkable in that which related to the Grisons; and that we had no kings in Britain at that time, but were a province to the Romans; that no ancient authors speak of it, Bede being the first that mentions it; and that the pretended letter to Pope Eleutherius, together with his answer, has evident characters of forgery in it. All this,*" he adds, "*signified nothing to the bishop, who assured me that they had a tradition of that in their church, and it was inserted in their Breviary, which he firmly believed.*"

Well aware, that my endeavours to convince the monks of the falsity of the legend would have ended as unsuccessfully as the reasoning of Burnet, I did not imitate his example; but without entering into the merits or demerits of the story, contented myself with admiring the beautiful prospect, which induced me to visit the convent. The environs of Coire are delightful; the plain is richly diversified with corn and pasture; the hills gradually sloping to the foot of the mountains are covered with vines, which yield wine of a pleasant flavour, but not strong. The points of view vary surprisingly, from agreeable to romantic, from romantic to wild. The Rhine, which flows rapidly through the plain, begins here to be navigable by rafts, and merchandize is transported toward Lindau and Zurich.

LETTER LXXXIII.—*Castle of Haldenstein.—Seminary of Literature.* *

I RODE this evening, in company with two gentlemen of Coire, from whom I have received great marks of attention and politeness, to Haldenstein, which may be called the smallest sovereignty in Europe. We passed along the side of the hills, at the bottom of the rugged rocks which lead to the League of the Ten Jurisdictions, and enjoyed a fine view of the rich plain, stretching from the town of Coire as far as Embs. The beautiful verdure of the meadows, the sloping hills clothed with vineyards, the craggy mountains partly covered with vines, partly overspread with wood, and partly bare, formed altogether a striking prospect. We crossed the Rhine to Haldenstein, a small village consisting of about sixty houses, and proceeded to the house occupied by the present baron, Rhodolph de Salis, who received me with great politeness, and kindly indulged my curiosity, by shewing me his little territory, and answering my inquiries with great readiness and exactness. The baron, a gentleman of considerable learning and indefatigable industry, has formed a large collection of manuscripts relative to the Grisons, from which he has drawn ample materials for a publication, in which he is at present engaged. His researches are chiefly biographical; and his work is intended to illustrate the memoirs of the principal persons, who have rendered themselves conspicuous among the Grisons by their actions and abilities*.

The

* This work is announced as not yet finished, in Haller's *Schweitzer. Bibliothek*, vol. ii. p. 364. under the following titles: 1. *Rhetia Illustrata, contenant l'histoire ou les principaux evenemens de la vie des Hommes celebres*

The barony of Haldenstein, he said, was formerly under the protection of the seven ancient cantons of Switzerland; since the year 1568, it has been an independent sovereignty, under the protection of the three leagues. In the middle of the sixteenth century it was possessed in right of marriage by John de Castion, French ambassador to the Republic of the Grisons, and at his death in 1565, came into the family of Scharenstein; the male line being extinct, it was divided between two females of the collateral branches, one of whom married a de Salis, and the other an Hartmannis. In the beginning of this century the descendants of de Salis purchased the other half, and again reunited it under one person.

The whole barony consists of a small semicircular plain, between the Rhine and the bottom of the Calendar, about five miles in length, and scarcely one in breadth; and occupies also part of the mountain, which is too steep to be inhabited. It contains only two villages, Haldenstein and Sewils, and the subjects amount to no more than between three and four hundred. The people were serfs, or vassals, until 1701, when the grandfather of the present baron gave them several immunities. At present the lord has territorial jurisdiction, the exclusive privilege of hunting and fishing, a claim of two days work annually from each of his subjects, and a load of dung from each peasant. He appoints the judge in the criminal court, receives the fines for offences, from which he pays the expences of the process, and has the power of pardoning. He nominates the president, and part of the jury in civil causes, and in all cases of appeal judges in the last resort.

The baron shewed me several coins struck by his predecessors; the most ancient was a gold piece of 1611, the year in which the Emperor Matthias conferred the right of coining money upon the baron of Haldenstein; a privilege which he still enjoys.

The ancient castle of Haldenstein, from which the barons took their title, is now in ruins; but the remains are still visible upon the sides of the mountain. Above it is another ruined castle called Lichtenstein, formerly inhabited by an ancestor of Prince Lichtenstein of Vienna, from which he is said to derive his title. The prince is so convinced of his descent from the ancient possessors of this castle, and so proud of their antiquity, that he procured a stone from these ruins, for the foundation stone of a superb palace which he has built at Vienna, that it might be said to contain some materials of the original castle in which his ancestors once resided.

The present castle of Haldenstein, built in 1545, by James de Castion, is pleasantly situated near the Rhine, and commands a fine view of the town of Coire, and the adjacent country.

A few years ago the castle was converted into a seminary for the education of youth. It was long a serious cause of complaint, that in the whole country of the Grisons there was no public seminary for completing the education of youth, and that all who followed any of the learned professions were obliged to repair to foreign academies. M. de Salis, of Marchlins, and some other persons of the first consequence among the Grisons, considering this defect a disgrace to their country, projected a plan for the institution of an academy; and having obtained the ratification of the general diet, which assembled at Davos in 1761, carried it into immediate execution at their own expence, with a zeal which reflects the highest honour upon their exertions. The plan was extensive and useful, and seemed well calculated to secure success. For a short time it

célèbres qui ont paru au pays des Grisons. 2. Rhetia Literaria, ou Catalogue de tous les auteurs Grisons, de leur vie, et de leurs ouvrages.

The baron is since dead, and I have not heard that these works have been published.

wore a flourishing appearance; but this prosperous beginning was not succeeded by any beneficial consequences. Its decline was owing to the little countenance given to literature, was hastened by quarrels which arose between the professors, and in 1779, within the space of fifteen years from its first establishment, the institution was dissolved.

Literature among the Grisons is at a very low ebb; one of the most learned men in this country, who would not be inclined to depreciate the knowledge of his countrymen without sufficient foundation, thus expresses himself upon this subject*:—"As the administration of affairs is entirely in the hands of the people, the greater part considering nothing but their own profit, despise every species of polite learning, and are unwilling to allow any salaries, or bestow any honours upon the professors; so that all persons who cultivate the sciences are incited merely by the love of glory, and a disinterested zeal." If this is the case, it would be chimerical to expect the arts and sciences to flourish in an ungrateful soil, where they meet with no encouragement: but even amidst these obstacles to improvement, there have never been wanting, and are still to be found, men of superior souls, who have dedicated their time to the cultivation of letters; and who merit the highest praise, for labouring in the vineyards without hopes of profit.

The protestants who receive a liberal education repair for the most part to Zurich or Basle, and the Catholics to Milan, Pavia, or Vienna.

Each community has a small school, in which the children are taught to read, write, and cast accounts; but which is only open from the 9th of November to the 7th of March. Those parents who wish to give their children a better education, and can support the expence, must either send them to foreign parts, or maintain a private tutor.

There is a Latin seminary at Coire for the children of the burghers, and another instituted in 1763, for the education of persons intended for the church; these establishments though poorly endowed have been productive of some literary advantages to the country. There is also a typographical society at Coire for Latin, German, and Romanish, and books in the Romanish are printed in the Lower Engadina and at Disentis.

LETTER LXXXIV.—*League of Ten Jurisdictions.—Fatzzerol.—Baths of Alvennew.—Davos.—Valley of Pretigau.—Malantz.—Mayenfeld.—Baths of Pfeffers.*

I QUITTED Coire yesterday morning, in order to make an excursion into the League of the Ten Jurisdictions; but before I proceed in my account of this expedition, I shall send you a short abstract of the History of the League, from the first foundation to its perfect independency.

This league ought properly to be called, and indeed is not unfrequently denominated in this country, the League of the *Eleven* Jurisdictions, from the number of communities of which it is composed; but as upon its first union it was formed of ten only, the original appellation is still retained, although one of the jurisdictions has been since that period subdivided into two.

* *In Rhetia nostra rerum administratio omnium a plebe dependet, cujus numerus potior non nisi quæ ante nasum sunt, ac lucrum adferunt, sapit, quicquid de reliquo agatur, litteras politiores, cum omni gloria et commodis quæ ex illis subsequuntur, quasi rejicienda contemnit; nullum earum professoribus premium, nullum meritum, laudem nullum tribuit; sic ut qui litteras ament, et excolant, ex generoso quorundam animi impetu id agant, seposito omni alio fine, et absque ullo ad eas calcari. Et his tamen non obstantibus, reperti et apud Nos qui generosi ediderunt prætoris documenta; reperti etiam, qui scientiarum culturam, ac amorem quibusvis aliis prætulerunt, licet illorum labores ac memoria fere cum ipsis intereat, nec sit qui eam ab interitu vindicet.* Aporta Hist. Reformat. Rhæt. Præfat.

The territory was formerly under the dominion of the Barons of Vats, whose authority was limited, as the people possessed very considerable privileges. On the death of Dogatus, the last baron, the count of Toggenburg, who married his eldest daughter, succeeded to his possessions; and Frederic, one of his descendants, dying in 1436 without issue, the communities united, formed an offensive and defensive alliance, and erected themselves into a league. But although by this alliance they increased their immunities, yet they were by no means perfectly independent; for the male heirs of the count of Tockenburgh still retained certain baronial rights, which consisted in appointing the criminal judge in several communities, in the power of pardoning, in a share of the fines, in nominating the principal magistrates from three candidates, and in other prerogatives. These rights, purchased by Sigismund, Archduke of Austria, and enjoyed by the Emperor Maximilian the First, were exercised by means of a governor appointed with the concurrence of the league, and resident at Castels. In process of time the baronial prerogatives were gradually annihilated, either by purchase or concession; the communities became free, and their independence was solemnly ratified by the Emperor Ferdinand the Third, soon after the peace of Westphalia.

After half an hour's ascent from Coire, I entered the League of the Ten Jurisdictions near Malix, passed through the community of Churwalden, in which the hamlets prettily scattered about the vale, and upon the sides of the mountains, and made a small circuit to the village of Fatzerol, which consists only of five or six houses, and stands at the bottom of some rugged mountains; it is celebrated in the history of the Grisons as the place where, in 1471, the first perpetual alliance was ratified by the deputies of the three leagues. I was accompanied to the spot by one of the principal inhabitants, who was not displeased with the enthusiasm I testified at beholding the birth place of their liberties. The house is now in ruins, and the apartment which was remarkable for the meeting of the deputies no longer remains. Having, with the assistance of my companion, traced its site, I considered with respect the spot which was once sanctified by the ratification of a general union, lamented that so venerable a pile of building should be suffered to fall into decay, and felt disappointment, that no inscription, by public authority, consigned to posterity the date of the transaction, and consecrated the place which had been witness to an event the most memorable in the annals of this country.

Having satisfied my curiosity in viewing these respectable remains, I descended through Brientz to the Baths of Alvenew, placed in a most romantic position, by the side of the torrent Albula, and at the bottom of the majestic Alps; the source is sulphureous, and resembles both in smell and taste the waters of Harrowgate.

Having passed through Alvenew and Anderwisen, I mounted a rugged ascent through a thick forest, and pursued a narrow path upon the side of a rock called Zug; over a precipice, with a torrent flowing beneath. This rock is mostly bare, excepting a few stubbed firs, the remains of a forest which was formerly destroyed by fire; hence it is called the *Burnt Wood*, and exhibits a most desolate appearance; at the bottom of this rock, close to the torrent, are mines of silver, which were formerly worked. I entered the jurisdiction of Davos at the village of Glarus, and took up my lodging in a neat cottage.

The district of Davos is a long plain, a quarter of a mile broad, and gradually rising into hills, which terminate in high mountains; it is not unlike the valley of Upper Engadina, but is more fertile. Near the church of St. John is a small cluster of eight or ten houses, in the other parts the cottages are thickly strewed over the plain, and upon the gentle acclivities, as in the canton of Appenzel, each with its little territory. The

produces oats, rye, large quantities of rich pasture, and yields yearly two crops of hay; it is now the second harvest, and the fields are covered with mowers. The bordering mountains are overspread to their summits with forests of fir and larch, intermixed with meadows; above them tower the rugged Alps. A clear murmuring stream flows through the midst of the plain, with a gentle though lively course; its banks prettily ornamented with scattered cottages, which are remarkably neat and commodious. Some are built of trees piled one upon another; others have stone foundations, and the upper part of wood; and a few are constructed with stone plaistered and white-washed. I walked to the valley of Diesma, leading to Scampf in Upper Engadina, which is closed at some distance by a high mountain covered with snow, said to be one of the most elevated in the country of the Grisons; it is called the Swart-Horn, and is part of the Scaletta Alps, which communicates with the Julian Alps, the Set, and the chain that separates the Valteline from Upper Engadina and Pregalia. Close to the inn is the town house, in which the deputies composing the general diet of the Grisons assemble every three years; it is also the place of annual meeting for the deputies of this league, when they chuse the *Bunds Landamman*, or chief, and transact any particular business; this building is plain and simple, like the people themselves.

The form of government established in this district of Davos, is like that of the small cantons of Switzerland, entirely democratical. The people must be assembled upon all extraordinary occasions, such as enacting new laws, deciding upon appeals from the general diet, and raising money; every male at the age of fourteen has a vote. The whole collective body of the people, however, do not meet in order to chuse their magistrates, who are elected from deputies sent by each district. The administration of affairs resides in the great council of eighty-two, and the council of fifteen included in the former. The great council regulates all affairs relating to finance; the fifteen superintend the police, and are judges in the civil and criminal courts of justice without appeal*. In criminal cases torture cannot be inflicted without permission of the great council. The Landamman is elected every two years and is president of both these councils.

This remote corner has produced several persons eminent in literature; and particularly the two historians of the Grisons, Guler and Sprecher.

John Guler was born in 1562, and died in 1637, at a very advanced age. He was remarkable for his multifarious knowledge, and published in 1616, in the German tongue, "An account of the three Grison Leagues, and other Rhetian people." In this work, much esteemed by the natives, the author gives a circumstantial detail of the origin of the ancient Rhetians, and of their emigration from Tuscany into this country under their leader, Rhætus; traces their subsequent history under the Romans, and in the dark ages, to the beginning of the fifteenth century, when the union of the three leagues was established.

Guler has illustrated the history of ancient and modern Rhætia by wooden engravings of medals, towns, battles, genealogical tables, coats of arms, and maps, which, though rude, are curious for their antiquity. The author also meditated a second volume, on the union of the three leagues, on the topography and history of the whole country, and on the transactions of his own times. For this part of the work Guler was eminently qualified; as well from his extensive erudition, and for having carefully

* It is remarkable, that through the whole League of the Ten Jurisdictions there is no appeal from the decision of the civil courts of justice, excepting in the community of Alvenew; the inhabitants of that place being Catholic and Protestant, an appeal lies to the civil tribunal either of Churwalden, or of Davos.

digested Campel's account of the Grisons*, as from the various offices to which he was raised both in the civil and military line, and the repeated embassies and negotiations in which he was employed. It is, however, uncertain whether this part was ever finished; and, if finished, it is probably lost; for Aporta searched for it without success in the libraries and among the manuscripts of his countrymen†.

The deficiency of this valuable performance, however, is supplied by Fortunatus Sprecher, the contemporary, friend, and relation of Guler.

Sprecher was born in 1548, and in 1617 gave to the world *Pallas Rhetica armata et togata*; or the military and civil history of the Grisons from the earliest ages to the æra in which it was published. In this work, which is a model for method and perspicuity, the author details the national history, in ten books. The first contains the emigration of the Tuscans, their settlement in this country, the description of the ancient Rhetians, and their transactions to the time of Augustus. The second comprises the period from the Augustan æra to the establishment of the empire of the Franks. The third treats of the Grisons under the empires of the Franks and Germans, till 1476. The fourth details the wars of the Grisons; namely the Swabian war against Maximilian the First, and the campaigns against James of Medici, from 1525 to 1531. The fifth comprises the wars in which the Grisons were engaged under the standards of foreign powers. The sixth relates the union and political state of the three leagues, and their alliances. The seventh, eighth, and ninth, separately describe the Grey League, the bishopric of Coire, the League of God's House, and the League of Ten Jurisdictions. The tenth concludes with an account of the Valteline, Chiavenna, and Bormio.

A second volume, which appeared in 1629, under the title of, *Historia Motuum et Bellorum postremis bisce annis in Rhetia excitatorum et gestorum*, relates the wars and troubles of the Grisons from 1617 to 1629, a period of turbulence and discord.

A third volume continued the history of the Grisons from 1627 to a short time before the author's death, which happened in 1647; but has never been published.

Towards the extremity of the beautiful valley of Davos I came to a small lake, about four miles in circumference, which is remarkably deep and clear, and abounds with excellent trout. It lies at the foot of the mountains, and supplies a small stream, which, being joined by one from the valley of Flola; and by another from that of Diesma, forms the murmuring brook that waters the valley of Davos, and falls into the Albulá above the baths of Alvenew; this lake is considered by some writers as a source of the Rhine.

From the banks of the lake I descended to another, half a mile in circumference, that lies in a wild and romantic situation, and supplies a torrent which is the source of the Lanquart. A little further I traversed a small pleasant plain strewed with cottages, which compose the village of Lower Lera; at the extremity of which the descent was so steep and rugged, that I dismounted until I reached the vale of Pretigau. I passed through* Closter, Kublis, Jenatsch, and Schiers, following the torrent Lanquart. The country is delightful, and greatly diversified with all kinds of productions, yielding different species of grain, rich pastures, abundance of fruit-trees, with large quantities of hemp and flax; hemp is much cultivated, and seems to be carried to great perfection; the peasants manufacture from it coarse but very strong linen.

The mountains on each side are in some parts covered with forests; and so great is the abundance of wood, that the fields are either studded or skirted with larch, pines,

* See Letter 73.

† See Aporta Hist. Refor. Ecc. Ræt. Præfat.—Haller, in his Schweit. Bib. No. 814. says, that it was prepared for the press, but unfortunately burnt.

nd beech. The hamlets are scattered through the plain, and along the declivities of the mountains, in a very pleasing manner; the houses are mostly of wood, in the Swiss mode of construction, and not less convenient; the road through this vale descends gently all the way. I have not for some time visited a more agreeable, fertile, and populous district.

A little beyond Grusch, which lies under some bare rocks in a fertile plain, the valley of Preigau contracts, leaving only a narrow pass between imperling rocks, just broad enough to admit the torrent and the road. The sudden change from the fertility of the country to the barrenness of this spot, sufficiently striking of itself, was still further heightened by the gloom of the evening, which added to the horror of the scenery. The road was carried for some way in continued ascent and descent along the craggy precipices, sometimes above, and sometimes upon a level with the torrent. The path was so narrow and rugged, that I gave my horse to the guide, and, continuing my way on foot, soon emerged from this obscure pass, and, as far as I could judge by the dim light of the stars, came into a fine and rich country, and went through a series of vineyards to Malantz, in the district of Mayenfield.

The High Jurisdiction of Mayenfield is the most remarkable in the whole country of the Grisons, because the inhabitants are respectively sovereign and subjects. They are sovereign, because they form part of the League of the Ten Jurisdictions, send deputies to the general diet of the Grisons, and nominate to the governments of the subject provinces. They are subject because, like the provinces, they are governed by a bailiff sent from the Grisons, who is changed every two years, and in whom resides the supreme authority. This strange intermixture of privileges and subjection is derived from the following causes:

The lordship of Mayenfield was, like the whole territory of this league, subject to the Counts of Toggenburgh, and, in 1436, joined the other communities to form a league. In 1509, the prerogatives enjoyed by the Count of Toggenburgh were sold, by his heirs, for 20,000 florins, to the three leagues, which confirmed the privileges of the inhabitants. In 1537, Malantz and Jennins, the remaining part of this High Jurisdiction, were also purchased for 10,000 florins. Thus, while the inhabitants of all the other jurisdictions, who came under the dominion of the House of Austria, have procured their absolute independence, the people of Mayenfield and Malantz, although making part of the sovereign power, have continued in the same state as at the first formation of the leagues. The bailiff or governor is appointed by the communities of the three leagues in rotation, and the inhabitants of this very High Jurisdiction nominate the bailiff, when it is their turn to present to the office.

The bailiff appoints the *Stadvoigt*, or chief magistrate of the town, with this condition, that he must be a member of the senate; upon a vacancy in the senate or little council, he nominates the new senator; he arrests and examines criminals, and has power to make a composition; he cannot order torture, or pass sentence, without the concurrence of the members of the criminal tribunal*, and, when they pass sentence, can pardon; he can give a liberation, in the same manner as the governor of the Valteline†; he receives part of the fines for criminal offences, and a certain portion of the great tythes; at Malantz he appoints the chief magistrate from three candidates presented by the people. Both Mayenfield and Malantz have their civil courts; from that of the former an appeal lies to the bailiff.

* The members of this tribunal consist of six judges from the district of Mayenfield, and six from that of Malantz, three from Jennins, and two from Flzsch.

† See Letter 76.

From Malantz, a small but handsome town, lying upon the side of a hill, I descended into a rich plain of pasture, about three miles in breadth, crossed the Rhine, and soon afterwards ascended into the county of Sargans, through hanging groves of larch, fir, birch, beech, and oak. From the eminence I looked down upon a fine view, on the other side of the Rhine, of hills gently rising from the river into mountains. Upon this chain are situated Mayenfeld, Malantz, Jennins, and Elzsch, surrounded by corn-field, meadows, and vineyards; it seemed the richest part of this country. I observed beyond the confines of the Grisons, at a little distance, the road * which I passed in 1776, as I travelled from Appenzel to Wallenstadt.

Having reached Pfessers, I left my horse at the village, where there is an abbey of Benedictine monks, the abbot of which is a Prince of the empire, and took a guide to the baths, which are distant about three miles. I passed through a thick forest of beech, down a steep and rugged path, to the house which the abbot has built for the reception of the company. Formerly the accommodations were extremely indifferent, and the descent into the baths was attended with great inconvenience, if not with danger. Affairs are now greatly changed; the waters are conveyed by pipes into commodious baths; and the house, which is not only convenient but superb, hangs in a most romantic situation on the side of a mountain, amidst the gloom of the forest, close to the lively Tamina.

Being desirous of visiting the warm source, I crossed the Tamina, over a wooden bridge, and entered a chasm or narrow opening, in a rock of lime-stone, through which the torrent has forced its way. The chasm is from ten to twenty feet broad, and from two to three hundred feet high. In some places it is open at top, and overspread with shrubs; in some its sides converge and almost touch; in others it is quite closed with enormous masses of fallen rock, and scarcely admits a feeble ray of light. The passage through this chasm is quite dreadful, and my head almost turns giddy at the recital. I went along a kind of scaffolding erected for the purpose of supporting a wooden aqueduct, through which the waters are conveyed: the planks upon which I walked either resting upon long beams, or suspended by iron cramps driven into the sides of the rock, hang over the torrent. I was frequently obliged to stoop for a considerable way to avoid the impending rock; in some places I traversed a single plank, which forms a kind of bridge suspended over the gulf, tottering under my weight, and so narrow that I was compelled to walk sideways. In this manner I continued for near a quarter of an hour before I reached the warm springs, which gush abundantly from the crevices of the rock. Here the baths were formerly constructed: the houses for the reception of the sick were built upon a platform, under the overhanging crags; a situation so dreary, that I no longer find the description given by the writers of the last century in the least degree exaggerated. Willing to convey a general idea of their gloominess, they represent these dwellings as never receiving the rays of the sun, and so dark that the inhabitants were accustomed to use candles at midday. The approach to the baths was very inconvenient; the company descended ranges of perpendicular ladders, or were let down by ropes. As the rocks have fallen, and overwhelmed these subterraneous dwellings, I could observe no traces of them, except some holes in the rock for the beams which supported the houses.

These baths have been so renowned for their efficacy in curing the gout, rheumatism, and cutaneous disorders, that, according to the general opinion, they contain a small portion of gold; as if that metal would render them more salutary. The waters are

* See Letter 5.

transparent, perfectly free from smell or taste, and about the warmth of milk immediately drawn from the cow. Persons who have analysed them say, that they deposit no sediment, are as light and pure as rain-water, are impregnated with a small quantity of volatile alkali and iron, but contain no sulphur.

I returned from this source through the same chasm, and along the same tottering scaffold, and was not displeased when I issued again into day. I then mounted to the village of Pfeffers, descended into the plain of the Rhine, and hastened to Coire.

LETTER LXXXV.—*Union of the Three Leagues.—Diet.—Constituent Parts.—Mode of choosing the Deputies.—Analogy between the Grison Diet and the British Parliament, according to the Plan of extending to the People at large the Right of electing Representatives.—Remarks on the Inexpediency of that Plan.*

THE country of the Grisons is divided into three leagues, which unite and form one republic; the Grey League, the Cadée, or the House of God, and the Ten Jurisdictions. The respective communities of these three Leagues have their peculiar constitution, enjoy their municipal laws and customs, and are independent commonwealths in all concerns, which do not interfere with the general policy of the whole republic, or the articles of the particular league of which they form a part.

It is remarkable that the precise period at which the three leagues formally united to compose one general republic cannot be ascertained from any positive record in the annals of this country. Campel, the best historian of the Grisons, places this event about 1436*. For, though the first articles of union which are transmitted to posterity were drawn up in 1524, it is plain that there were others of anterior date, because it is therein expressly mentioned, that the said articles were compiled from a former treaty, with great additions. This union has since been frequently renewed at different periods; but the articles remain without alteration.

The connection between the three leagues is maintained by means of an annual diet of the congress and of the three chiefs.

The diet is composed of sixty-three deputies, and the three chiefs; the Grey League sends twenty-seven, and the House of God twenty-two, and the Ten Jurisdictions fourteen; they are chosen in the several communities by every male at a stated age†.

The diet assembles annually about the beginning of September at Ilants, Coire, and Davos, by rotation, and continues sitting three weeks or a month. The chief of the league in whose district the diet is held, is president for that turn, and has the casting voice in case of equal suffrages. The supreme authority is not absolutely and finally vested in the diet, but in the communities at large; for in all affairs of importance, such as declaring war, making peace, enacting laws, contracting alliances, and imposing taxes, the deputies either bring positive instructions from their constituents, or refer those points concerning which they have no instructions, to the decision of the respective communities; so that in effect the supreme power constitutionally resides in the body of the people, and not in their representatives at the diet. All questions in the diet are carried or rejected by a majority of voices, and the mode of voting is as follows: In all cases where the communities send instructions, the deputies deliver them to the

* Sprecher, however, in his *Pallas Rhetica*, fixes the union of the three Leagues in 1471, p. 228. Elz. edit. Most of the Grison historians follow Sprecher.

† The age which entitles them to vote is not exactly the same in all communities; in some it commences as early as fourteen.

secretary, who reads them aloud; if these instructions are obscurely worded, as sometimes happens, either through accident or design, the diet determines by a majority, in what sense they shall be taken. In resolutions, which, for want of instructions, are subject, after the decision of the diet, to the revivification of the communities, each member is at liberty to vote as he chooses. The three chiefs have no suffrage, when the communities send their instructions, because they are not representatives; but in all cases which are either not referable, or afterwards submitted to the communities, they vote in the same manner as the deputies.

It is worthy of remark, that, although each deputy has the power of bringing in any bill, or proposing any question, yet he can only communicate it to the assembly through the medium of the president, who may lay it before the assembly, without any previous notice, at any time before its dissolution; a privilege which invests him with great influence in promoting or opposing the success of a motion.

The deputies receive, for their attendance, a small salary from the public treasury, which never exceeds five shillings a day.

Extraordinary diets are convoked at the request of any foreign court, who will discharge the expence of the sittings, and upon other important emergencies. This extraordinary assembly is sometimes composed of all the deputies, at other times of only half the number, in which case it is called a half diet; the deputies are chosen in the same manner as at the election of a general diet, and its powers are the same.

The aristocratical party is still further strengthened by the power delegated to the congress; an assembly formed by the three chiefs, and three deputies from each league. In the Grey League these deputies are nominated by the Landrichter; in each of the other leagues they are chosen by rotation from the communities.

This congress generally meets in February or March at Coire; for which reason the chief of the League of God's House is president; its office is to receive the votes of the several communities, relative to the questions referred to their deliberation at the last diet, and to communicate to each the result of the general decision. Whenever the answer of a community is not clearly worded, the congress determines the meaning of the vote, and this circumstance gives an opening to much intrigue. For, if the leading persons in any community do not choose to form a positive decision, they have it obscurely worded, provided they are certain that a majority of the congress will affix that interpretation which they desire. This assembly issues decrees to the subject countries: if such decrees are agreeable to the governors, they carry them into execution; but if otherwise, and they can secure a majority at the approaching diet, they reject them, alleging that congress has exceeded its power. The three chiefs, as well as each of the other members of the congress, receive as a defrayment of their expences 54 florins, or about £4.

The three chiefs assemble regularly three times in the year at Coire, and, upon any emergency, may be also summoned by the chief of the League of God's House. The principal meeting is in the month of May, when they write circular letters to the several communities; concerning the questions which are to be laid before the general diet. All the circular letters are written in German, and are translated into Italian or Romansh by the notaries of the district where those languages are spoken; all public acts and documents are compiled in German; at the diet all bills are proposed in that language, but the deputies who do not understand German may speak Italian*.

Those

* Of all the constitutions in Switzerland, that of the Grisons was the most democratic, and seemed to contain many of the essential characteristics considered by the French as constituting a perfect form of representative

Those theorists, who are so anxious to reform the English House of Commons by transferring to *the people at large* the election of their representatives in parliament, might, on examining with attention the features of the Grison diet, fondly imagine, that an *annual* assembly, in the choice of whose members *every male* of the state has a vote, and which, in all material occurrences, is liable to be directed by its constituents, must necessarily be the purest sanctuary of general freedom. In this instance, however, their conjectures are by no means consonant to fact and experience; as corruption and influence are not in any national parliament more conspicuous than in the diet of the Grisons.

For although, in general, those deputies, *annually chosen by every male of a stated age*, are subject to be controuled in their votes by written orders from their constituents, yet they frequently contrived to elude this restriction. Sometimes the instructions are drawn up, with the consent of the community, under the sole direction of the deputy himself; at other times, an exemption from positive instructions, and the power of voting at his own pleasure, is purchased by the deputy from his constituents. Sometimes again, the deputy, although he cannot gain either of these points, has still sufficient address to get his instructions so obscurely worded as to admit a doubtful interpretation.

By various intrigues of this kind the greater part of the deputies ultimately acquire the power of voting as they please; and as they chiefly obtain this power by corrupting their constituents, most of them in return sell their vote to the leading members of the diet; for most questions are carried, and most causes decided, by bribery. Nor can it well be otherwise, when the electors are persons in needy circumstances; and the members, who have purchased their seats, are not themselves exalted by their possessions above temptation.

presentative government, such as primary assemblies, annual elections, universal suffrage, and general eligibility. Yet the French no less attempted to democratise the most democratic constitution on earth, and proved that possession, and not reform, was their object. It was not difficult to excite tumult and insurrection among a people divided into factions, and turbulent from the popular nature of their constitution.

As early as 1790, the agents of France were industrious in disseminating the new principles, but the great body of the people were averse to all innovation. At length, in 1794, a society of Grison Jacobins induced the people to abolish the ancient form of government, to substitute a National Convention in the place of the General Diet, and to throw themselves under the protection of France; and this revolution was accompanied with the usual horrors of pillage, banishment, and bloodshed.

This precarious tenure, however, did not satisfy the French rulers, who coveted the possession of a country, which commanded the passes of Switzerland and the Tyrol; and Bonaparte had no sooner concluded the armistice with the Emperor, than he dismembered the Valteline, Chiavenna, and Bormio, and annexed them to the Cisalpine republic. This perfidious conduct unveiled the ambitious designs of France, inflamed the resentments of the people against their Jacobin leaders; and the anti-revolutionary party began to recover their ascendancy. The proceedings of the French in revolutionizing Switzerland, and the cruelties committed in the small cantons, particularly the massacre of Unterwalden, excited general horror, and the people, inspired by the approach of an Austrian army, rejected the mandate of the French directory to incorporate themselves with the Helvetic Republic, one and indivisible, re-established the ancient government, drove out the agents of France, recalled the exiles, decreed a defensive armament under the command of M. de Salis de Marschlins, and gave notice to the court of Vienna of their intention to claim the number of troops stipulated by the capitulation of Milan.

General Schawenbourg instantly marched fifteen thousand troops to the frontiers of the Grisons, on the side of Sargans, and prepared, with the aid of the French party, to regain possession of the country. The insurgents secretly assembled on the night of the 5th of October at Mayenfeld and Malantz; but the conspiracy being detected, the alarm-bell was sounded, the Jacobins were disarmed, ten thousand peasants flew to the defiles, and the regents, equally disregarding the threats and promises of the French resident, demanded the assistance of the Emperor, and committed the defence of their country to an Austrian army.

On the renewal of hostilities between France and Austria, the country of Grisons became the scene of bloody contests, and was alternately occupied by both armies; but is now (1801.) in the possession and under the power of France.

Thus

Thus the leading members secure an unbounded sway in the affairs of the diet; but still it should seem, that whatever influence they may obtain by corrupting the deputies, yet, as the diet does not in many cases decide finally, they could not acquire the same authority in those concerns which must be referred to the determination of the communities at large. Here at least we might expect the unbiassed sense of the majority of the people. But it may be universally remarked, that the delegation of deliberative authority to the people at large, unavoidably tends to introduce an actual, though not an acknowledged, aristocracy. For a *numerous* populace summoned to determine upon political, legislative, and judicial questions, *far above their comprehensions*, must resign themselves to the direction of more informed men, especially when aided by the recommendation of superior wealth. The deputies being generally the chiefs of those communities which they represent, have the principal influence, and easily find means to incline the opinion of the people to the side which they have espoused. In fact, without this aristocratical influence, the excess of freedom would degenerate into anarchy, and public deliberations be attended with endless disputes and factions.

If therefore corruption and aristocratical influence alone diminish factions and prevent anarchy in so poor a country as that of the Grisons, and in a republic scarcely known among the nations of Europe; to what a dreadful excess must the same evils prevail, if the *same* mode of electing, and giving instructions to, members of parliament, subsisted in a kingdom like England, where riches and luxury are continually advancing with such rapid strides, where the most important political and commercial debates are agitated without restraint, and where the decisions of public affairs frequently affect the peace and interests of all Europe.

Theoretical reasoners may, indeed, attempt to prove, that the best method of preventing corruption is to augment the number of electors, from the chimerical idea, that *large numbers* cannot be bribed. But if we appeal from uncertain theory to more certain experience, we shall find that this argument is contradicted by the history of all ages. Among the Grecian republics, those commonwealths in which the magistrates were chosen by the *people at large*, were the most venal. Among the Romans, the most effectual means which Julius Cæsar, the ablest politician of his age, employed to subjugate his country, was to extend the privileges and votes of Roman citizens to *all* the inhabitants of Italy. The members of the Polish diet *, which is no less venal than the diet of the Grisons, are chosen by needy and *numerous* electors, of whom far the greater part possess no property; and whose *numbers*, instead of preventing, necessarily tend to increase influence and corruption †.

LETTER

* See Travels into Poland, Russia, &c. Vol. I. b. i. c. vi. & viii.

† If instances were wanting to justify the truth of these observations, the French revolution will afford an uncontrovertible example. The great and leading features of their representative form of government, which was to give happiness and peace to mankind, were, as in the Grison diet, annual elections, universal suffrage, and general eligibility without any qualification. The consequences have been venality, persecution, anarchy, and universal spoliation, which have ultimately terminated in despotism. Fortunately the great majority of the English nation are fully convinced that the absurdity of realising the specious notion of a reform in parliament is proved by experience, and that universal suffrage, annual elections, and general eligibility without qualification, would be attended with the same fatal effects which they produced in France.

The French having, in the commencement of the revolutionary career, made every thing subservient to personal liberty, and constituted their fabric of government on the basis of universal suffrage, are now hurrying into the contrary extreme, and in the new metaphysical system the rights of property are alone considered.

LETTER LXXXVI.—*Valley of Sopra Selva.—Ilants.—Truns.—Disentis.—Tavitsch.*

IMPATIENT to return to England, after so long an absence from my friends, I yesterday morning quitted Coire, passed by Embs, and over the bridge of Richenau, which I again stopped to admire, as it boldly projected over the Rhine. I then rode along the side of the mountains which separate the Grisons from the canton of Glarus, went through Tamins, and left Flims on my right, situated about a quarter of a mile from the road, in a pleasant plain. The houses of these towns are not scattered like those of Davos, but stand in separate clusters, resembling the burghs of Engadina. Having traversed thick forests of pines, and a very wild country, richly diversified with grain and pasture, I descended to the deep bed of the Rhine, and crossed it to Ilants.

Ilants, the capital of the Grey League, is a small town, containing about sixty houses, and partly surrounded by walls; a circumstance which serves to distinguish it, as it is the only walled town, excepting Coire, in this country. It is also remarkable as the place where the general diet of the three leagues assembles every third year. The adjacent country is fertile in every species of grain and pasture. The points of view are uncommonly fine, exhibiting a small plain skirted by cultivated mountains, and backed by a ridge of barren rocks which bound the valley of Lugnetz. The Romanish, which is spoken in these parts differs considerably, both as to pronunciation and orthography, from that of Engadina. By the assistance of some persons to whom I had letters of recommendation, I procured several books in the dialect of this league; these, in addition to others I obtained in Engadina, have so considerably swelled my travelling library, that if I continue to increase the collection, I must hire an additional horse for the purpose of carrying my baggage of information.

This tract of country, stretching from Reichenau to the mountain of St. Gothard, is called the valley of Sopra Selva, and is the most populous part of the Grey League.

Quitting Ilants, I pursued my route at the foot of the mountains, through a plain covered with pasture and forest by the side of the Rhine, which is rapid and shallow; and passed through a rocky country, continually ascending and descending amid large tracts of forest. I crossed the Rhine several times during the last four or five miles: that river formed repeated cataracts, as I judged from the roaring sound, for the evening was so dark that I could not distinguish any object.

I arrived late at Truns, remarkable in the history of this country, as the place where the independence of the league was first ratified, and an alliance concluded between the chiefs and the communities. An aged oak still exists, under which, according to tradition, the three chiefs confirmed the liberties of the league; and near it a chapel, whose walls are painted with a representation of the ceremony.

My curiosity led me to the town-house, in which the diet of the Grey League is annually assembled. The room is well adapted for the purpose, and is handsomely painted with the arms of the Landrichters, beginning from those of John of Lambris, the first

Roederer, one of the principal supporters of democracy in the early periods of the revolution, alluding to the evils of universal suffrage, which he calls the extension of the elective franchise, has recently declared "that it could produce nothing but the invasion of the republic by beggars, the subversion of the constitution, and an anarchy regularly organised;" and in speaking of frequent elections, he also observes, "How could men hazard such a measure as that of annually agitating a mass of thirty millions of men?"

person appointed to that office when the Grey League was formed. From this place of meeting the assembly is always called the Diet of Truns. It consists of the same twenty-seven deputies who are appointed for the general diet of the three leagues, the two Landrichters, the abbot of Disentis (the representative of the House of Austria) as baron of Retzuns, and the temporary Cau de Sax. All affairs relating to legislation, politics, and finance, which concern the general interest of the league, are agitated in this assembly, and the questions decided by the majority of voices.

At the same place is also a court of appeal, composed of sixteen * deputies, and the Landrichter, who has the casting voice; it decides in the last resort all civil causes above a certain sum, brought from the decision of the civil courts in the communities of the Grey League.

Disentis, from whence I am now writing, takes its appellation from an abbey of that name, whose abbot was formerly sovereign over this part of the Grey League, and who, although he has suffered a diminution of his prerogatives, yet, as one of the chiefs of the league, still possesses no inconsiderable influence in the general administration of affairs. At the diet of Truns he not only votes, but has such weight, that few acts can pass in opposition to his will. In the court of appeal, although he is not present, he may be said to possess four votes, as the four deputies from the High Jurisdiction of Disentis are generally nominated through his interest. Nor is his ascendancy confined to the Grey League: by the nomination of the Landrichter every third year, he secures four † votes in the congress for that sitting, and has also much power in the general diet of the Grisons, by his influence over the deputies of the Grey League. His present revenue is very small, scarcely amounting to £100 per annum; in addition he receives a pension from the House of Austria, which is interested to secure his concurrence. He is chosen by the Benedictine monks, who compose the chapter, and is a prince of the German empire.

The abbey, situated upon the side of the mountain, is a large quadrangular building, and makes a magnificent appearance from the village. I was much disappointed that the abbot was not in the country; I had the pleasure of meeting him at Coire, and found him a person of considerable information. I no less regretted his absence, because he had in his possession the key of the archives, which are said to contain several curious records of high antiquity. The monks, who politely accompanied me over the abbey, were able to give me little intelligence. Besides the great church, they carried me to a small chapel, esteemed the most ancient in the whole country of the Grisons. Being previously informed that books in the Romanish tongue, for the use of the Roman

* These deputies are taken from the eight High Jurisdictions of the Grey League, in the following proportions:

From Disentis	-	-	-	4
Grub	-	-	-	2
Bugnetz	-	-	-	2
Waltenberg	-	-	-	3
Rheinwald and Schams	-	-	-	2
Retzuns	-	-	-	1
Tufis	-	-	-	1
Mafox	-	-	-	1
				<hr/> 16

† The propoies for Landrichter three candidates, from whom one is nominated by the deputies, but the latter always elect the person he recommends; and as the Landrichter appoints the three deputies to the congress, and is himself a member of the same assembly, the abbot may justly be said in that year to influence four votes in the congress.

Catholics.

Catholics, are frequently printed in the abbey, I procured several from the monks, particularly a vocabulary of the Romanish spoken in the valley of Sopra Selva.

Disentis is a straggling village lying upon a gentle declivity, which slopes gradually from the foot of the mountains to the banks of the Rhine. The sides of the mountains are clothed with groves of firs and small birch; the lower parts yield rich pasture, a small quantity of wheat, rye, and millet. Opposite Disentis is the valley of Medels, from which descends a torrent called the Middle Rhine, and joins the upper branch that flows from the chain of the St. Gothard.

The communities of Disentis and Tavetch, which form a High Jurisdiction, occupy the western extremity of the valley of Sopra Selva, stretching as far as the confines of Uri. The whole body of people assemble every two years at Disentis, in the open air, for the choice of the Landamman, and for the confirmation of their magistrates, as well as for the purpose of enacting laws; they nominate also to the governments of the subject provinces. The courts of judicature are established at Disentis, and the judges chosen by the people in the separate districts. The general administration of affairs is entrusted to a council of sixteen, which gives instructions to their deputies sent by the two communities to the general diet of the three leagues. The Landamman is president, and has the casting voice. The abbot enjoys the privilege of being present at all political questions, and of giving his vote; he has considerable influence in these communities. Formerly the fines for criminal offences belonged to him; but one of his predecessors having disposed of that right, they are now divided among the judges.

September 30th.

I QUITTED Disentis this morning, and in about two hours entered the pleasant valley of Tavetch, lying at the foot of the Alps which separate the Grisons from the canton of Uri. The villages are numerous, and consist of scattered cottages chiefly constructed of wood, resembling the Swiss hamlets in the small cantons. I met many large herds of cattle just descended from the higher Alps, and driving towards the fairs of Tirano and Lugano.

The valley of Tavetch produces pasture, hemp, and flax, and a small quantity of rye and barley; the trees are chiefly firs and pines, and their number gradually diminishes towards the extremity of the vale. From Tavetch I ascended a narrow path, and passed through Selva and Cimut, the last village in the country of the Grisons, where I took my farewell of the Romanish. The country became more and more wild as I ascended; and the Upper Rhine gradually diminished as I approached its source. A little beyond Cimut I came into a small plain of pasture, watered by two streams which unite and form the Upper Rhine. I once intended to visit the source of the principal stream, that precipitates from mount Badus; but finding, upon inquiry from the inhabitants of Selva, that it would employ at least five hours; as the day was far advanced, and my late illness has disqualified me for such fatiguing journeys, I prudently pursued my route to Urseren. At Cimut, a peasant, who had frequently visited the spot, informed me, that the chief source of the Rhine descends from a glacier upon the summit of the Badus, and forms a piece of water about half a mile in circumference, called the lake of St. Thomas; from this lake a torrent precipitates itself down the mountain, and being joined by many springs and currents, forms the larger of the two streams, which unite in the above-mentioned plain. From this plain I ascended by the side of the smaller stream, until I traced it falling from a glacier close to the confines of the canton of Uri. The ascent, though abrupt and craggy, was not so difficult as the passage

sage of the Braglio or the Muret. These Alps produce no trees, but are covered to a great height with herbage.

After two hours continued ascent from the valley of Tavetch, I reached the highest point of the chain which separates the country of the Grisons from the canton of Uri; a few paces further I passed a post without an inscription, which marks the boundary between the two respective territories. Soon afterwards I arrived at a lake of an oblong shape, a mile and a half in circumference, formed principally by a torrent that falls from the northern side of the same chain which gives rise to the Rhine; the lake supplies a stream that may be called one of the sources of the Reufs. I followed it as it flows through a narrow plain, until I came to a steep descent, where the beautiful valley of Urseren suddenly burst upon my view.

LETTER LXXXVII.—*General Idea of the Courts of Justice.—Religion.—Revenues.—Population.*

DURING the course of my correspondence I have occasionally mentioned the judicial proceedings in some of the communities. I shall here remark in general, that throughout the three Leagues the Roman law prevails, modified by municipal customs. The courts of justice in each community are composed of the chief magistrate, who presides, and a certain number of jurymen chosen by the people: they have no regular salary, but receive for their attendance a small sum, arising in some communities from the expences of the process, which are defrayed by the criminals, in others from a share of the fines. They enjoy the power of pardoning or diminishing the penalty, and of receiving a composition in money. This mode of proceeding supposes, what is as absurd in theory as it is contrary to experience, that judges will incline to mercy when it is their *interest* to convict; or will impartially inflict punishment even when injurious to their own private advantage.

The prisoners are examined in private, and frequently tortured for the purpose of forcing confession, when the judges either divide the fines, or remit the punishment for a composition. In some districts a criminal trial is a kind of festival to the judges, for whom a good repast* is provided at the expence of the prisoner, if convicted: thus the allusion in Garth's Dispensary, applied with more wit than truth to our courts of justice, is literally fulfilled:

“And wretches hang, that jurymen may dine.”

Capital punishments, however, are extremely rare; a circumstance arising not from any peculiar lenity in the penal statutes, or a propensity to mercy in the judges; but because the judges draw more advantages from fining than executing an offender. In a word, to use the expression of Burnet, which is no less true at present than in his time, “Many crimes go unpunished, if the persons who commit them have either great credit or much money.”

It is remarkable that torture is more frequently applied, and for smaller delinquencies, in these independent republics, than in the subject provinces. The infliction of it depends entirely upon the arbitrary will of the judges, a majority of whom may order it for an offence which by the statutes is not capital, nor even punishable by corporal penalties. Thus it is not uncommon, in those communities where fines are divided

* A specific sum is allowed for the expence of the dinner, amounting in general to about 48 florins.

among the judges, to torture women of loose conduct, for the purpose of compelling them to confess with whom they have been connected; for as such offences * are punishable by fine, the more persons are convicted, the larger share of money is distributed among the judges. Even in the districts where the fines are paid to the community, torture is often no less wantonly inflicted; because, when the prisoner is not found guilty, the expences of the process fall upon the public, and the judges receive less emolument.

Even in the civil courts most causes are decided by bribing the judges; and appeals, in those communities wherein they are admitted, scarcely serve any other end than to enlarge the sphere of corruption. Coire and a few other places are excepted from this general reflection. This description comprehends the course of jurisprudence throughout the Grisons: how then can it be expected that the governors of the subject provinces should impartially administer justice, where their power is enlarged, and where they enjoy greater means of enriching themselves?

Before I close the account of the courts of judicature, it may be necessary to mention the *Straffgericht* †, or public chamber of justice, which was established upon particular occasions, and in the most alarming crisis of affairs, by the consent of the general diet; and which, during its sittings, had jurisdiction over the three leagues. It was chiefly held in cases of high treason, and is thus justly described by Burnet: "There is a part of this constitution that is very terrible, and which makes the greatest men in it tremble: the peasants come sometimes in great bodies, and demand a chamber of justice from the general diet; and they are bound to grant it always when it is thus demanded, which comes about generally once in twenty years. Commonly this tumult of the peasants is set on by some of the malcontented gentry, and generally there are a great many sacrifices made. This court is composed of ten judges out of every league, and twenty advocates, who manage such accusations as are presented to them. This court is paramount to law, and acts like a court of inquisition; they give the question, and do every thing that they think necessary to discover the truth of such accusations as are presented to them; and the decisions of this court can never be brought under a second review: though there is an exception to this, for about a hundred years ago, one court of justice reversed all that another had done; but that is a single instance."

These meetings, very usual in the last century, were always attended with such dreadful effects as nearly to endanger the republic. The present generation, grown wiser by experience, and either aware of the dreadful effects of such licentious proceedings, or less agitated with intestine dissensions, have never had recourse to these sanguinary measures: accordingly these courts are now fallen into disuse, and may be considered as obsolete, although not abolished by public authority.

The religion of the Grisons is divided into Catholic and Reformed, the only persuasions tolerated in this country. By the Reformed is meant what we call Calvinism,

In many of the communities, incontinence between married persons is punished by a fine of 200 florins

A married and single person

150

Persons unmarried

100

A pound sterling is equal to about 13½ Grison florins.

† Pachal, the French ambassador from Henry the Fourth to the Grisons, given, in his *Rhetical Legation*, the following definition of a *straffgericht*. *Straffgerichtum est is hominum paucis electis, imperitum, ac truculentorum consessus, qui rebus turbidis a, moris, et laxiviente, multiplicitate agitur in hoc, ut serviat in personas, et fortunas eorum, quos vel suavitatis, si facinorosi homines sunt, aut si boni, sed infelicitas, his duris capitibus maculando objicit: igitur ea omnia sub aspectu et violentia seu rancore et libidine plebis et partis irrita agit, lano fovendi o: suum jamdiu occupantis.*

although

although it is not the same as was established at Geneva. For, as the reformation was introduced into this country by the disciples of Zuingli, the religion of the Protestant Grisons bears a greater resemblance to that settled at Zurich, than to the church of Geneva; although the difference between the two sects is extremely trifling. Among the Grisons the Protestants are more numerous than the Catholics, being estimated as about two thirds of the inhabitants; and Stanyan justly asserts *, that, "as all their elections are decided by the plurality of voices, the republic of the Grisons may be deemed a Protestant state."

The reformation was introduced very early: the new doctrines were first preached about the year 1524, and received at Fläsch, a small village in the Ten Jurisdictions, upon the confines of Sargans: from thence they were extended to Mavensfeld and Malantz, and soon afterwards through the whole valley of Pretnau. The reformed opinions spread with such celerity, that before the end of the sixteenth century they were embraced by the whole league of the Ten Jurisdictions, (excepting part of the community of Alvenew,) the greater part of the House of God, and a few communities in the Grey League.

The difference of religion nearly excited a civil war between the two sects, as well at the first introduction of the reformation, as at the beginning of the troubles in the Valteline, where the two parties rose in arms; but the Catholics being overpowered by the Protestants, matters were amicably adjusted. Since that period, all religious concerns have been regulated with perfect cordiality. According to the general consent of the three leagues, each community, being absolute within its little territory, has the power of appointing its own mode of worship, and the inhabitants are free to follow either the Catholic or Reformed persuasion. In the administration of civil affairs religion has no interference, the deputies of the general diet may be members of either communion. By this moderate and tolerating principle all religious dissensions have been suppressed, and the most perfect amity subsists between the two sects.

In spiritual concerns the Catholics for the most part are under the jurisdiction of the bishop of Coire. For the affairs of the Reformed churches, each league is divided into a certain number of districts, the ministers whereof assemble twice every year: these assemblies are called *colloquia*. Each *colloquium* has its president, and each league a superintendent, called a dean. The supreme authority in spiritual concerns is vested in the synod, which is composed of the three deans, and the clergy of each league; the synod assembles every year alternately in each of the three leagues. Candidates for holy orders are examined before the synod. The necessary qualification for admission into the church ought to be the knowledge of Hebrew, Greek, and Latin; but this rule is not strictly adhered to, many being ordained without the least acquaintance with either of those languages. Formerly Latin was solely used, as well in the debates of the synod as for the purpose of examining the candidates, but at present that tongue grows more and more into disuse, and German is employed in its stead.

The number of reformed parishes in the whole three Leagues amounts to one hundred and thirty-five. In the Grey League forty-six, in that of God's House fifty-three, and in the League of Ten Jurisdictions thirty-six. The ministers of these churches enjoy very small salaries. The richest benefices do not perhaps yield more than £20, or at most £25 per ann. and the poorest sometimes scarcely £6.

This scanty income is attended with many inconveniences. It obliges the clergy, who have families, to follow some branch of traffic, to the neglect of their ecclesiastical

* State of Switzerland, p. 228.

studies, and to the degradation of the professional character. Another inconvenience is superadded to the narrowness of their income. In most communities the ministers, though confirmed by the synod, are chosen by the people of the parish, and are solely dependent on their bounty.

For these reasons the candidates for holy orders are generally extremely ignorant; they cannot support that expence which is requisite to pursue their studies; they are not animated with the expectation of a decent competence, and, from the dependent mode of their election, are not encouraged to deserve their promotion by a consistent dignity of character. But there are not wanting a few men of great knowledge and eminence, as well in their professional studies as in other branches of polite learning. Beside Aporta, whom I look up to as a kind of phenomenon in the literary world, I have met with two or three clergymen who are greatly distinguished for their erudition, and who would do credit to any church.

It is remarkable, that the liturgies of these reformed churches are not exactly the same; a diversity owing to the independence of so many small commonwealths, which are absolute within their little territories in all concerns that do not affect the political union of the three Leagues. The churches of the German communities use the liturgy of Zurich; but as this form of prayer was amended in 1766, some of the ministers admit the new, and others still retain the ancient liturgy.

Stephen Gabriel, pastor of Haute, a person of great learning, in the beginning of the last century translated into the Romansh of the Grey League the liturgy of Zurich; and the same form of prayer is used in the Upper and Lower Engadina, adapted to their respective idioms*. The ministers of the Italian churches employ a translation of the Genevan liturgy†.

The old style is in use among the Protestants, the new style among the Catholics‡: a few years ago an attempt was made to introduce the latter among the Protestants. The inhabitants of Pregalin admitted it; and those of Upper Engadina offered also to receive it, if the town of Coire would set the example. Its admission, however, being strongly opposed from religious scruples, it was absolutely rejected, and the inhabitants of Pregalin again adopted the old style.

The revenues of the three Leagues arise from the following articles:

1. The duties upon the merchandise which passes through the Grisons, the Valteline, and Chiavenna; they are farmed at the annual rate of 17500 florins, or about £1250.
2. A third of the fines laid upon delinquents in the subject countries; the fluctuating state of this article cannot be ascertained.
3. A tribute of 700 philips§ from the Valteline, and 100 from Chiavenna.
4. A small fund, the principal part of which is only £400, vested in the English Rocks.

The public expenditure is very trifling, being chiefly confined to the expences incurred by the sittings of the diet, and the salary assigned to the deputies for their attendance.

Besides this public treasury, each League has a fund. The pensions received from foreign powers are paid annually at the meeting of the diet, when they are equally divided between the three Leagues, and each deputy distributes the share to the community which he represents.

* For the Romansh spoken in Upper and Lower Engadina, see Letter 90.

† In 1749 a new service was introduced into the churches of Pregalin; but, on account of its length, soon fell into disuse.

‡ I am informed, that since my departure from the Grisons the new style has been adopted by several Protestant communities.

§ A philip = 30.

Many disputes have occasionally risen among the Grisons in regard to the power of coining, and several of the communities have asserted their claim to the exercise of that right. The fact is, that each community might doubtless coin money, and order it to be taken within its own little territory; but as it would not pass in the other parts, the right is merely nominal. According to the general consent of the three Leagues, this privilege is vested in the town of Coire, in the bishop, and in the baron of Haldenstein*. No money is, however, struck in the Grisons, excepting a small copper coin called blutger, which is somewhat less than a halfpenny. The gold and silver current in the country is chiefly Austrian and French.

From the best information which I have been able to collect, the population of the Grisons may be thus estimated:

The Grey League contains	-	-	-	-	54,000	souls
League of God's House	-	-	-	-	29,000	
League of Ten Jurisdictions	-	-	-	-	15,000	
					<hr/>	
					98,000	

If we add 87,000, the number of inhabitants in the Valteline, Chiavenna, and Bormio, the whole population of the Grisons, and the subject countries, will amount to only 185,000 souls; and, allowing for deficiencies, will scarcely exceed 200,000.

LETTER LXXXVIII.—*Commerce of the Grisons.—Canal of the Adda.*

THE commerce of the Grisons is extremely contracted; the only exports (exclusive of those from the subject provinces) being cheese and cattle. They import grain, rice, salt, and silk stuffs, from Milan; grain from Suabia and Tyrol; salt from Tyrol and Bavaria, fine cloth, chiefly English, French, and Silesian, through Germany; fine linen and muslins from Switzerland. As the only manufacture throughout the whole country is, that of cotton established at Coire, it is evident that the balance of trade must turn considerably against them. They are enabled to support this deficiency by means of the estates which the Grisons possess in the subject provinces, by the sums which the governors draw from those provinces, by public and private pensions from France and Austria, by money saved in foreign services, and by the duties upon the merchandise passing through their territories.

As most of the Grison peasants weave cloth and linen for the use of their families, it would be no difficult undertaking to introduce manufactures in different parts. But in these little republics a strange prejudice prevails against commerce, and the project of establishing manufactures is opposed by many leading men of the country. It is difficult to discover the occasion of these illiberal principles; it has been imputed to a suspicion, that if the people should become opulent by commerce, they would be less open to influence, and the powerful families, who now direct the public affairs, would lose their ascendancy. Besides these reasons, which are of too delicate a nature to be openly acknowledged, other motives of a more generous complexion have been assigned.

The advocates for limiting commerce assert, that as the true riches of every country consist in the produce of agriculturé, all occupations, which draw the attention of the people from that great object, are detrimental to the general good of society: in free

* And I believe in the abbot of Disentis.

states particularly, manufactures tend to enervate the inhabitants, to introduce luxury, to depress the spirit of freedom, and to destroy the general simplicity of manners.

These arguments, however specious in appearance, will prove fallacious upon mature consideration. If in a country, which subsists chiefly by agriculture, manufactures are pursued to the total neglect of husbandry, they then become detrimental; but this is seldom the case; for, by adding to the general consumption, manufactures usually tend to increase, instead of diminishing the produce of the earth. Such have been the effects in the mountains of Neuchatel, where the forests have been cleared, and the country converted into pasture, or sown with grain. Manufactures and commerce are still farther serviceable in augmenting the number of inhabitants, which form the true riches of a country. For whenever constant opportunities of employing a number of men occur, children will not be a burden to the peasants, and population will increase; which cannot happen in districts affording little employment.

With respect to the Grisons in particular, their territory being entirely mountainous, will not yield sufficient produce for interior consumption, consequently some means of supplying the deficiency must be adopted. Now surely it would be far more honourable to pursue commerce, even if attended with some unavoidable inconveniences, than to depend for subsistence on foreign subsidies, to oppress and exhaust the subject provinces, and to exhibit a regular system of venality, which almost pervades the whole mass of people.

Neither does the establishment of manufactures tend to enervate the inhabitants, and diminish the spirit of freedom. In fact, the manufactures in these democratical states are by no means similar to those introduced into large towns, where numbers of individuals are collected in the same spot; on the contrary, the work is divided, and distributed among the peasants, who, with their wives and children, weave the cloth at home. By this method they preserve (as I had occasion to remark in the canton of Appenzel) their original simplicity of manners, and maintain the spirit of freedom, even to a greater degree, than in those parts where there is no commerce. Examples are not wanting among the Grisons themselves: the natives of Upper Engadina, who are so much inclined to trade, are in reality more free and less influenced than the people of the other communities; nor is it observed, that the inhabitants of the Valley of Pre-tigau have become more enervated, since they have been employed in preparing cotton for the manufactory of Coire. In fact, that kind of occupation does not always take the peasants from more active employments. In summer, they are at leisure to cultivate the earth, while their wives and children attend principally to the manufactures; during the long winters, which last in these Alpine regions for six months without intermission, agriculture is necessarily suspended, and these occupations succeed the more laborious exertions of the field.

As the principal commerce of the Grisons and the subject provinces is carried on across the lake of Como with Milan, I shall give an account of the inland navigation, which has been lately established for the purpose of facilitating that commerce; the several parts of which I had the curiosity to visit.

The water communication between the country of the Grisons and Milan is formed by the lake of Como, by its branch the lake of Lecco, by the Adda, by the canals of the Adda and Trezzo.

The canal of Trezzo, called also *Canale della Martesana*, begins at Trezzo, situated on the Adda, and is carried to Milan. This cut, which is 24 miles in length, commenced in 1457, under the reign of Francis Sforza, and completed in 1460, did not at first serve for the purpose of navigation more than two days in the week; being principally used for overflowing the low grounds with water, necessary for the cultivation of rice.

rice. In 1578, during the administration of the duke of Aberquerque, Spanish governor of Milan, the cut was enlarged, and the body of water so much increased as to admit the passage of vessels every day.

Still, however, the Adda was not navigable during the whole way between the lake of Lecco and Trezzo; but formed a succession of cataracts for the space of a mile. To obviate this inconvenience, a canal was projected, in 1519, but no part was carried into execution, excepting a mole, which was thrown across the Adda. In 1591 the work was undertaken, and the canal completed in 1599. But the stream of the Adda was no sooner admitted into the cut, than the banks broke down, for so considerable a way, as to render all repairs impracticable. This breach, generally imputed to the violence of the current, was principally owing to the nature of the rock, in which the cut was excavated, and to an error in the original plan. The rock is a composition of gravel and sand, or a species of pudding-stone, of loose texture and unequal solidity; and as the cut was made too near the precipice, which overhangs the Adda, that part of the rock which formed the bank of the canal was not sufficiently strong to support the weight of water.

From that time the canal was considered an impracticable work, and abandoned until a few years ago it was again undertaken by order of the Emperor Joseph the Second, and carried on with such expedition, as to be finished within the space of three years.

The canal is about a mile in length, and is excavated in the rocks, which forms the precipitous banks of the Adda. In some places the rock has been hollowed to the depth of 100 feet, and the breadth of 200. The fall of water, which is equal to the perpendicular height of about 80 feet, is broken by six sluices: and the water is supplied by the stream of the Adda; the breadth of the canal is 70 feet.

The expence has already amounted to near £100,000. The engineers, however, seem to have fallen into the same error which attended the original plan, by forming the cut too near the precipice. In consequence of this inadvertence, the water lately forced down the banks of the canal; and the damage was not repaired without much difficulty and considerable expence. Notwithstanding the precaution of letting out the superfluous water by flood-gates, there is reason to apprehend, that these breaches will be frequent; and that the recent labours may be rendered as ineffectual as those of the Spaniards.

But should the canal continue in its present state, and the navigation not be interrupted; the advantages will hardly compensate the expence of making and keeping it in repair. The commerce between the Grisons and Milan is extremely contracted, and if all the merchandize which passes was conveyed along the canals, the tolls and duties would be very inadequate to the expence.

The navigation, however, from the lake of Como to Milan is attended with many difficulties, and the greater part of the merchandize is sent by land, as the most commodious and less hazardous way. The current of the Adda is so rapid, that the vessels cannot be towed up without great expence and delay, and is in some parts so extremely dangerous, that boats are not unfrequently overfet. The only persons, therefore, who forward their merchandize along the Adda and the canals to the lake of Lecco are the contractors, who furnish the Grisons with corn and salt, and who are compelled by the government of Milan to send those commodities by water. When it is considered that Milan receives from the Grisons only planks, stones for building, and coals, but supplies them with corn, rice, and salt; the articles of export evidently exceed those of import, and the navigation from Milan to the lake of Como is of more consequence than that from the lake of Como to Milan. The canal of the Adda, therefore, which

has only facilitated the inland navigation from the Grisons to Milan, and not from Milan to the Grisons, though a work of extreme difficulty, and redounding greatly to the honour of the Sovereign who completed it, will scarcely produce advantages equal to its original cost and frequent repairs*.

LETTER LXXXIX.—*Alliances of the Grisons with the Swiss Cantons—France—Venice—and the House of Austria.*

THE alliances of the Grisons with foreign powers come next under consideration.

The Three Leagues, though always esteemed allies of the Swiss, yet are not, strictly speaking, in confederacy with all the cantons. In 1477 the Grey League, and in the following year the League of God's House, entered into a perpetual treaty with Zurich, Lucerne, Uri, Schwytz, Unterwalden, Zug, and Glarus. Although the League of Ten Jurisdictions was not included in the same treaty, yet it was afterwards declared that, in consequence of its connection with the other two leagues, it should be entitled to the same assistance and good offices. The Three Leagues are likewise allied with Bern and Zurich, to whose mediation they have frequently had recourse in points of disagreement. By these treaties the Grisons are called allies of the Swiss, and, in consequence of a request from the particular cantons, with which they are united, ought, in case of invasion or rebellion, to be supplied with succours from the Swiss republics.

The Grisons contracted the first alliance with France in 1539, during the reign of Louis the Twelfth, and in 1516 were comprised in the treaty of perpetual peace between Francis the first and the Helvetic body. Since that period they have, as occasion offered, renewed their private confederacy with the kings of France; but were not comprehended in the late treaty of Solothure, concluded between Louis the Sixteenth and the other States of Switzerland. The king of France maintains an envoy in this country, and has two Gison regiments in his service.

In 1707 a treaty was formed between the Grisons on the one side, queen Anne and the United Provinces on the other, for permitting the free passage of troops marching into Italy. This is the only alliance by which the Grisons, as a particular state, are connected with England. Our court formerly had a minister in the country; but for some time the English envoy to the Swiss cantons resident at Bern, has transacted business with this republic.

The Venetians, for the purpose of procuring the free passage of the Valteline, had often solicited an alliance with the Grisons; but their projects were always defeated by the influence of the Spanish monarch, who possessed the Malansse; nor were they able to accomplish their design, until the Spanish branch of the House of Austria became extinct in the person of Charles the Second. Soon after that event, when Milan was the object of contention between the emperor and the French, the Venetians obtained the consent of the Grisons to a treaty of alliance offensive and defensive, which was ratified at Coire the 17th of December 1706. By this treaty it was stipulated, among other articles on the side of the Venetians, to pay an annual pension of 711 Spanish doubloons, and to furnish the Grisons, in time of war, with a thousand Venetian ducats per month; in return, the Grisons agreed to permit the passage of the Venetian troops

* The canal mentioned is referred to the Abbe Tossi's account of the Canals of the Adda, and Trezzo, and of the other navigable canals in the Milanese. See *Paul Frisi Opera*, tom. ii. *Dei Canali Navigabili di Lombardia*, 4to. 1650. cap. 3. 4. & 5.

through the Valteline, and to make a road leading from Morbegno over the mountain of St. Mark into the Venetian territories, by which accommodation merchandise might be conveyed to and from Venice to Germany without going through the Tyrol.

This treaty, concluded for twenty years, was to continue in force for the same additional period, unless one of the contracting parties should withdraw before the expiration of the first term; but though obtained by the Venetians with much trouble and expence, it was not long fulfilled by either of the negotiating powers. In a few years the Venetians omitted the payment of the annual pension, and the Grisons neglected to make the road over the mountain of St. Mark. The two republics, however, continued upon terms of amity; and the Venetians, soon after the expiration of the forty years, desirous of renewing the treaty, offered to discharge the arrears of the pension, if the Grisons would open the proposed communication over the mountain of St. Mark. For this purpose an envoy was dispatched to the Grisons in 1759, and no promises were spared to promote the negotiation: it failed, however, through the influence of the Empress of Germany. The Grisons rejected the proposals of Venice, and still further alienated that republic by the capitulation of Milan. The Venetians, incensed by this conduct, banished the Grisons who were settled within their territories, and all connection is now interrupted between the two republics.

The treaties with the House of Austria, as sovereigns of the Milanese, remain to be considered. It is not my purpose to mention any treaties which the Grisons contracted with the dukes of Milan of the house of Sforza, or those by which Philip the Second and his successors acknowledged their claim to the Valteline, Chiavenna and Bormio; but I shall begin with the celebrated alliance, or, as it is called, the *Capitulation* of Milan in 1639; because it superseded all others, and established that close connection between the Grisons and the House of Austria, which has since continued with little interruption.

The following are the principle articles in this capitulation, concluded between Philip the Fourth, king of Spain, as duke of Milan, and the Three Leagues:—An hereditary and perpetual peace between the two contracting powers. Weekly fairs to be established in the neighbouring towns of the Milanese, in which the Grisons may purchase grain, and also enjoy a free trade, for the purpose of importing and exporting all kinds of merchandise and arms, on paying only the accustomed duties. A free passage through the territories of the Grisons for the Spanish troops, with a reserve, that no more than a company of 150 infantry, and a troop of 60 cavalry shall march through the same day. Free passage of the Grison troops through the Milanese, upon condition that they do not march against the allies of Spain, and that more than two or three companies do not pass at one time. The king may levy at his own expence, in cases of necessity, a body of troops not exceeding 6000 nor less than 2000, for his service against all his enemies, except the confederates of the Grisons, and particularly the republic of Venice. All Grison troops in the service of any state or sovereign, intending to attack the territories of the king of Spain, shall be immediately recalled; and all officers and soldiers, who enrol themselves in any foreign service, shall be forbidden to invade his majesty's territories. If the Grisons should be engaged in war, the king obliges himself to furnish, within fifteen days, 2000 infantry and 200 cavalry; but if they prefer assistance in money, to pay 1000 scudi * per month as long as the war lasts; also to send into the country of Chiavenna six pieces of campaign artillery, with ammunition sufficient for the service of the war. No troops shall be allowed to pass through the respective territories to the disadvantage of the two contracting parties.

* A Milanese scudo = to about 4s. 6d.

To each league the King promises an annual pension of 1500 scudi, and also to pay for the education of two students from each league at Pavia or Milan, besides a donation of sixty scudi to each student.

All ancient alliances with any other powers are to remain in force on both sides, particularly the treaty between the Grisons and France; they promise, however, not to renew it in case of a rupture between the two crowns; and, if renewed, to declare at the same time that it is to be suspended during such a rupture, and to contract no alliance with any foreign power to the prejudice of this perpetual peace. Should either party be attacked, the other, without any regard to the stipulations in favour of their ancient allies, is bound to give assistance against such invasion, excepting however on His Majesty's part, the German branch of the House of Austria; if that House should engage in war with the Grisons, for the maintenance of its rights in the territory of the Grisons.

The causes which gave rise to this capitulation, as well as the articles respecting the Valteline, having been already related *; it will be necessary only to remark, that the Spaniards guaranteed to the Grisons the possession of their subject provinces, and to the subjects the confirmation of their privileges. In case of dissension between the Grisons and their subjects, the dispute is to be referred to the mediation of the King of Spain.

This treaty, signed at Milan on the 3d of September 1639, by the Marquis de Legnes, governor of Milan, on the part of the Spanish King, and on the other by the deputies of the Three Leagues, was preserved inviolate, and a good understanding maintained between the contracting powers, until the extinction of the Spanish branch of the House of Austria in the person of Charles the Second. During the war of the succession, which followed his death, the Milanese frequently changed masters, until it was secured to the Emperor Charles the Sixth by the peace of Utrecht. Charles had no sooner established his power in his new dominions, than he turned his attention to the Grisons, and prevailed upon them to renew the capitulation of Milan. One of the principal arguments which gave success to his negotiation was the promise, not only of continuing the annual pension, but even of discharging the arrears, which amounted to twenty-nine payments.

This new treaty, in which the German branch of the House of Austria succeeded to the Spanish, was concluded on the 24th of October 1726, by Count Daun, governor of Milan, in the name of Charles the Sixth, and the deputies of the Three Leagues. It confirmed and ratified the ancient capitulation of 1639, with a few modifications and additions, of which the principal are: The duties upon corn purchased by the Grisons in the Milanese are lowered two thirds. The tenth article in the first treaty, by which all Grison troops in the service of any state designing to attack the territories of the House of Austria are subject to immediate recall, is annulled; and the Grisons are free to serve any foreign prince in time of war without incurring the breach of this capitulation. The number of students educated at the expence of the Emperor is increased to twelve.

On the 8th of February 1763, this hereditary league was renewed by Count Firmian, in the name of the Empress of Germany as sovereign of Milan, and the deputies of the Three Leagues. By this treaty the capitulations of 1639 and 1726 are ratified, and serve as the basis of the present union; they are also augmented by the following articles:

The Empress renounces all right to the lake of Chiavenna, together with a small portion of the adjacent territory, and cedes them in perpetuity to the Grisons. The limits between the Milanese and the territory of the Grisons are accurately fixed.

In return for this cession, the Grisons agree to erect no fortifications upon the ceded territory, impose no new taxes upon the transport of merchandise, make no new roads, and, according to the former capitulation, no troops shall be permitted to pass to the prejudice of the state of Milan.

The Empress promises to obtain from the Pope an abolition of several ecclesiastical privileges in the Valteline, highly detrimental to society; to prevent the Bishop of Como from granting ecclesiastical immunities to laymen, who assume the clerical dress; also to correct several other abuses, which render the clergy of the Valteline independent of secular authority, and in civil and criminal causes only amenable to the Bishop of Como. The weekly fairs for the purchase of grain are abolished; and in their stead the House of Austria agrees to supply the Grisons with a certain quantity for themselves and for the subject countries, according to the current price of corn in the Milanese. The duties upon merchandise exported from the Milanese are lowered, and the customs both in that country and in the territory of the Grisons are established upon a permanent footing; for which purpose a table of the duties is annexed to the treaty.

At present the House of Austria directs all the affairs of the Grisons with the most unbounded authority. That power has acquired this sway by regularly discharging the public pensions, by holding the leading members of the diet in its pay, by being a guarantee of the Valteline, and mediator in all the disputes between the Grisons and their subjects*.

LETTER XC.—*Languages of the Grisons.—Particularly the Romansh.—Its antiquity—Origin—and two principal Dialects.*

THE languages of the Grisons are the Italian, German, and Romansh. The Italian, which is a jargon similar to the Milanese dialect, is spoken by the inhabitants of Pregalia and Puschiavo, and in the vallies of Mafox and Calanca.

The German is spoken throughout the whole League of the Ten Jurisdictions, a few villages excepted; in the League of God's House, at Avers, Coire, and the four villages; and in the Grey League, at Splügen, Cepina, and other villages of the Rheinwald, at Valts, in the valley of St. Pedro, at Tulus, Reichenau, Feldsparg, Tamins, Meyerhof, Versam, and Valendres.

Some of the earliest and most authentic writers upon the Grisons have asserted, that the natives of the Rheinwald speak a Celtic idiom, a language neither German or Romansh, but more similar to the German; although they are entirely surrounded by people of a different tongue, and are neither contiguous, nor have any great intercourse with the German inhabitants. From this remarkable circumstance they are led to conjecture, that the natives of the Rheinwald are descended from the *Lepontii*, a Celtic nation, and considered as the original inhabitants of this country before the influx of the Tuscans; and they ground the proofs of this assertion upon the numerous names

* This intimate connection with the house of Austria preserved the Grisons from the subjugation experienced by the other states of Switzerland, and the security of its freedom depends solely on the strength of that power to protect them from the arms of France.

of many castles which seem to be derived from a * Celtic or German origin. This hypothesis, however, rests upon a wrong basis, and is grounded upon two mistakes. • For, in the first place, the language of the Rheinwald is German; secondly, although the inhabitants of this district are immediately surrounded by persons speaking the Italian and Romansh, yet they are within half a day's journey of Roncaglia, Tufis, and Birstenau, where German is the common language. It is more probable, therefore, that the Rheinwald was peopled by a German colony, which penetrated into these regions in the darker ages, when the Germans issued from their forests, and spread themselves over part of Europe. With respect to the German names of castles and towns we may remark, that many of them are corrupted from the Romansh, that others have been adopted in later times; and, as a proof that the Romansh is more ancient in this country than the German, the greater part of the mountains, vallies, and oldest castles, have Romansh appellations, even in the districts inhabited by the Germans [.

This circumstance leads me to the consideration of the Rhetian, or as it is more commonly called the † Romansh, which is the vernacular tongue among the greater part of the Grisons; a language in former times more extensively diffused than at present, being spoken at Coire and the adjacent districts, and through the Tyrol, as far as Inspruck.

I had the good fortune to meet with a German translation of Planta's excellent Treatise upon the Romansh of the Grisons, of which I had before seen the original in the Philosophical Transactions for 1775. The perusal of this treatise first excited my inquiries; and although I am obliged to differ from the ingenious author in a few instances; yet I hold myself indebted to him, for having greatly facilitated my researches, and for a more accurate knowledge of the subject than I could otherwise have obtained.

The Romansh of this country is divided into two principal dialects, the one spoken in the Grey League, and the other in that of God's House. These dialects, although materially varying as to pronunciation and orthography, are yet sufficiently similar in the general arrangement and expressions to be comprised within the same inquiry.

It must always be extremely difficult to trace the origin of any language; for etymologists are too apt to build a favourite system, by mistaking a partial for a general resemblance; and finding a few similar expressions in two languages, which in other respects are essentially different, conclude them to be derived from the same stock. The Grison writers, however, pretend, that the proofs of the antiquity and origin of their language are too well founded to admit of the least doubt. They assert that the Rhetian tongue is derived from the Latin, or from a dialect of the Latin; and the arguments upon which they ground their assertion may be reduced to three principal heads. 1. The history of the country; 2. The names of places which have evidently a Latin origin; 3. Its similarity to the Latin, and to other languages derived mediately or immediately from the Latin.

* Cluverius and other authors have erroneously supposed the Gothic and Celtic nations to be the same, and their language to have given rise to the Teutonic or German; but the learned translator (Dr Percy, Bishop of Dromore,) of Mallet's Northern Antiquities, has established, beyond a doubt, that the Celtic and Gothic nations were originally different, and that there was not the least affinity between the languages; the Celtic having given rise to the old Gallic, British, Erse, &c. &c. and the Gothic to the German. See Translator's Preface to Mallet's Northern Antiquities.

† The German names adopted from the Romansh are very numerous; such as *Chur* from *Curia* or *Coire*, *Spugen* or *Speluga*, *Cejina*, *Tufis* or *Tjfun*, *Davor*, *Preigau* or *Rheigoua*, *Castels*, &c.

The following German names are evidently of a very late date: *Furstenau*, *Furstenburg*, *Haldenstein*, *Lichtenstein*, *Heinzenberg*, *Reichenau*, *Rheinwald*, &c. as will easily be allowed by any one conversant in that tongue.

‡ It is called by the natives *Arumaunsb*, *Rumaunsch*, *Remanisch*, *Lingua Romanescha*.

1. The history of the country. Livy, who has given the earliest account of these Alps, informs us, that, under the reign of Tarquinius Priscus, a colony of Tuscans, driven from Lombardy by the Gauls, settled in these mountainous regions; and the same historian adds, that in his time the Rhetians, who were descended from these first colonists, still retained some traces of the Tuscan pronunciation, although vitiated by lapse of time and change of situation.

Since that period, we have no positive documents of any subsequent emigration; although it is probable, that upon many occasions in which the Italians quitted their country, they retired to these Alps, and mixed with the natives. In some of these excursions it is likely, that the inhabitants of Latium, or others, who spoke the Latin, or at least a dialect of that tongue, which must have had a considerable affinity to the Tuscan, established themselves in these regions; but whether this settlement happened during the invasion of Hannibal, or at any subsequent period, cannot be exactly ascertained.

About the time of the Cæsars, Rhetia became an object of Roman conquest; and frequent expeditions were made into these parts, until the whole country was reduced to a Roman province, and governed by a prætor resident at Coire. During that period, many Roman families established themselves in these Alps, and diffused the knowledge of their language. On the decline of the Roman power, Rhetia came under the dominion of the Franks, a German nation; who introduced their own tongue into many places, and in others gave a new turn and modification to the Latin, by the addition of auxiliary verbs, and by the frequent use of the articles.

2. The second proof of the derivation of the Romanish from the Latin, rests upon the numerous names of mountains, rivers, towns, and castles, which evidently seem to have a Roman origin. To use the words of the ecclesiastical historian*, whom I have so often quoted, "Persons versed in classic antiquity, who travel among the Grisons, will, from the frequency of Latin appellations, conceive that they are passing through Latium, Etruria, and Campania. They will trace the ancient names *Ardeates*, *Vettones*, *Sentinates*, *Samnites*, in Ardets, Vettan, Sent, and Samnun. They will meet with mount *Umbria*, the river *Albula*, the towns *Antium*, *Susa*, *Lavinium*, *Tutium*, *Scaptia*, *Silium*, *Cernetia*, and many others; derivations so plain and so frequently occurring, evidently certify their origin."

3. The affinity of the Romanish, as well to the Latin as to the languages immediately derived from the Latin.

First, a collateral argument in favour of its derivation from the Latin may be deduced from the word *Romanish*, the general appellation of the language, and the particular dialect of Engadina, called *Ladin*; both these terms having in effect the same signification, *La'in*† and *Roman* being synonymous. But without insisting too much on this conjecture, we need only refer to a book written in the Grison tongue, to perceive the general affinity of its vocabulary to that of the Latin. In this comparison, however, great allowance must be made for the variation which must have taken place between a mother tongue, as written in the best authors, and its offspring, which for many centuries was merely colloquial, and not only been occasionally intermixed with other lan-

* Aporta, Hist. i. p. 6.

† *Latin* and *Ladin* are the same words, only differently pronounced; for it must be evident to any one the least conversant with different languages, how often the *t* and *d* are substituted for each other. Quintilian says that the old Romans frequently wrote a *t*, before they had any fixed rules of orthography, instead of a *d*; for Alexander—*Alexanter*.

guages, but has suffered a change in its general modification by the admixture of the German syntax.

Yet it by no means follows, that the Romanish, although the undoubted offspring of the Latin, was derived immediately from that language, such as it is found in the best authors, or as consigned to writing during any period of the Roman æra; but rather, that it owed its origin to the vulgar tongue, as it was spoken by the people, or to some provincial dialect of Italy. In all living tongues there is a colloquial as well as a written language; for how different are the English and Scottish idioms, and even the dialects of Lancashire and Norfolk? In France the Parisian accent varies essentially from the provincial pronunciation; and the several patois of Provence, Lorrain, and Gascony, cannot be understood without respective glossaries. The same circumstance prevails in Germany, where the idioms of the Saxons, Austrians, and Suabians, are scarcely intelligible to each other. That this was equally the case with the Latin, we may collect not only from the general analogy of language, but likewise from the testimony of the best authors.

The origin of the Italian and of the other dialects, which are derived principally from the Latin, is frequently attributed to the invasion of the Goths under Alaric; when a new language was introduced throughout Italy and the Roman provinces. But this is not precisely the truth; for these several dialects arose from a corruption, or at least a variation, in the primitive Latin, antecedent to the irruption of the Goths, or even to the times of the Cæsars. Italy was occupied by many people originally independent: the *Umbri*, *Osce*, *Samnites*, *Etrusci*, and *Piceni*, all of whom differed in dialect, and many in language, from the Romans. But the Romans had no sooner conquered Italy, than the Latin language came into general use, though in the provinces it was not uniformly pronounced in the same manner, as the natives of every district varied in their mode of articulation.

Cicero mentions several * corruptions of the Latin which he could scarcely comprehend; and Horace alludes to the people of Canusium, in *Græcia Magna*, as speaking a mixed language †. Canusium contained, besides the original Greek natives, many inhabitants from different parts of Italy who spoke Latin. Hence their language was a mixture of both Greek and Latin; but so extremely impure as to give rise to the proverb, *Canusini more bilinguis*.

In Italy there must have been many idioms of this sort, which were for a long time unobserved. For, while Rome flourished, the language of that capital was the standard of purity, and all other dialects of the Latin were disregarded. Yet, even at Rome itself, the Latin was corrupted at a very early period. Suetonius ‡ relates that Augustus frequently affected to write words as they were pronounced, without any regard to orthography, and to abridge them, by the change or omission of syllables. If this was the practice of the sovereign himself, in the purity of the Augustan age, and in the capital, we may be assured, that the same custom was still more prevalent among the people in the distant provinces, and particularly towards the decline of the empire.

Thus the Latin tongue was growing gradually more corrupt, and would, in process of time, have almost totally varied from its primitive purity, even had Rome continued

* Amongst other examples he says, that the people, instead of *dum hanc*, pronounced *di hanc*, and *caunas* instead of *cave ne eas*.

† *Cum Pedibus caussas exsudet Poplicola atque
Corvinus, patrius intermiscere petita*

Verba foris malis, Canusini more BILINGUIS! Lib. I. Sat. x. v. 30.

Non literas modo sed syllabas permutat aut præterit. Communis hominum error.

to be the seat of empire; yet it may be allowed, that its decline was hastened by the irruption of Goths.

Should these remarks be founded on fact, the Romans must have left traces of their language throughout the different provinces of their vast empire; and the several dialects derived from the colloquial Latin, before they were refined and polished, must have borne a resemblance to each other, in some places more striking, in others more faint and distant. Although these dialects were in some measure changed and modified by the introduction of the Gothic or German idiom, which the conquerors gradually established throughout the Roman provinces, yet the same affinity must have been still observed; those changes affected *all* the dialects, and consisted not so much in varying the expressions, as in giving a new modification to the general syntax, by the introduction of the auxiliary verbs, by the inflection of the cases, and by the necessary use of prepositions and articles.

If therefore the Romans established themselves in the country of the Grisons so effectually as to introduce their own language; and if that tongue, derived from the colloquial Latin, and still further modified by the adoption of the German syntax, is, from the peculiar situation of the natives, and from not being confined to writing till within these last two hundred years, little changed from its primitive state; we have reason to expect, that it should bear evident marks of affinity to those dialects which have originated from the colloquial Latin, and were equally modified by the German syntax; it follows also, that the resemblance will be greater in proportion as we can trace earlier and ruder specimens; this analogy is consonant to experience.

The earliest language, which undoubtedly draws its origin from the colloquial Latin, is the ancient Romanish, called *Lingua Romana*, the mother of the French tongue. It was understood in Italy, in the Morea, and at Constantinople, and was universally diffused throughout the southern parts of Europe in the eleventh and twelfth centuries. Planta has unquestionably proved that this tongue and the Romanish of the Grisons are the same language.

We cannot expect, perhaps, the same evident affinity between the Romanish of the Grisons and any other language now existing; but in comparing it with the Italian, and particularly some provincial dialects of Italy, the Spanish*, the Patois of Provence, Languedoc, Gascony, and Lorraine, we shall easily perceive, that they originated from the same stock, with the difference which time, a variety of pronunciation, and the mixture of other tongues, must necessarily occasion in all languages. With respect to the Italian, it is remarkable that the Romanish less resembles the pure Tuscan idiom than the provincial dialects; a circumstance easily accounted for. The Tuscan has been gradually purified and refined until it has undergone a considerable change; and the provincial dialects being less committed to writing, have not been subject to such variation.

To these languages I may add that spoken by the Vaudois inhabiting the valleys of Piedmont, in the sixteenth century, of which Leger has printed specimens, the originals whereof are now extant in the public library at Cambridge; also the Wallachian tongue, which is derived from the Latin, introduced by the colony of Romans established by Trajan on the banks of the Danube. The present natives, descendants of that colony, although surrounded by people speaking the Hungarian and Slavonian, talk a language in which evident traces of the original Latin are still preserved. It bears a general re-

* In comparing it with the Spanish, we must exclude those words which have a strong guttural pronunciation, and are evidently derived from the Arabic.

semblance to the Italian; and Aporta, who passed some time in Hungary, informed me, that, allowing for the variety of pronunciation, he comprehended the natives, and found in their expressions no inconsiderable degree of affinity to the Romanish.

The Romanish of the Grisons is divided into two principal dialects, that of the Grey League and the *Ladin* of Engadina; for it is needless to mention separately the Romanish spoken in the valleys of Munster and Surset.

The two dialects perfectly agree in the grammatical arrangement, but differ widely in the pronunciation and orthography: of the two, the *Ladin*, being less intermixed with foreign words, is the purest; the Romanish of the Grey League, from the number of German colonies blended with the natives, abounds more in German expressions.

The *Ladin* is divided into the two idioms of Upper and Lower Engadina; the vocabulary of both is the same, with a small variety of accent* and pronunciation, which arises chiefly from the different manner of articulating the vowels. The inhabitants of Lower Engadina speak with a broader accent, like the Dorians among the Greeks; while those of Upper Engadina, like the Ionians, use a softer pronunciation. Hence is derived a variety in the orthography of the two idioms; and books, although perfectly understood by both, are printed somewhat different in the two districts.

Before the introduction of the reformation among the Grisons, the Romanish was esteemed so barbarous a jargon as to be thought incapable of being reduced to grammatical form†. It is no wonder that the monks, whose interest it was to keep the people in the grossest ignorance, should have favoured this opinion; but it is a matter of astonishment, that the most learned among the native laics, and such intelligent foreigners as Tschudi and Stumpf‡, should have supported a notion so contradictory to common sense. For although it is an evident axiom, that all living tongues may be reduced to certain principles, and consigned to writing, yet the barbarism of the Romanish was so universally prevalent, that no attempt was made to write it before the sixteenth century. The person to whom the Grisons owe the first production in their native tongue, was John de Travers; a man who, blending the characters of the soldier, politician, scholar, and divine, performed the most essential services to his country; by his valor in arms, by his skill in negotiation, by cultivating and protecting letters, and by favouring and assisting the introduction of the reformed religion.

This respectable person, of a noble and opulent family of Zutz in Upper Engadina, was born in 1483: before the eighth year of his age he was sent for his education to Munich, and from thence into Transylvania. Being there seized with a desire of travelling, he remained absent thirteen years, and returned to Zutz about the 28th year

* To give an instance of this difference.

The inhabitants of Lower Engadina pronounce the *a* open as we do in *war*, while those of Upper Engadina use *e* instead of the *a*.

Star	Stær
Judicar	Judicær
Armaint	Armænt
Our	Or
Chiauffa	Chioffa.

† Aporta, lib. ii. p. 403.

‡ *Rhetica lingua tam perplexa et impedita est, ut scribi nequeat; unde omnes literæ ab antiquis confectæ. Latine scriptæ sunt, et quas hodie pauci, Germanice scribi procurant.* See Tschudi Alp Rhæt. p. 9.—And, as Philip Galicius expresses himself in his preface to Camp's Plater:—*Parce chia'lg noas languak me nun aislet scriit ne er erit bruck ch'ell'g passu scriewer insyn awaunt bruck b'lear anns chia'lg jaimper deng da ngyr cun hunur nummad huom Ser Joan Travers du Quetz haa ell imprim scrut in Ladin la noassa guerra.*

of his age. Highly distinguished * for integrity, learning, and abilities, he acquired universal esteem and was raised to every honour which his grateful country was capable of bestowing. Indeed, such was the respect generally shewn to his superior talents, that no affair of moment was transacted by the Republic of the Grisons in which he was not consulted. His acquaintance with foreign languages, his knowledge of the world, and the politeness of his address, rendered him the fittest instrument to negotiate with foreign powers; and he always acquitted himself with honour. In a military line he greatly signalised himself as commander of the Grison forces against James of Medicis, for the rapidity of his movements, his personal valour, and cautious conduct; and by laying siege to the fortress of Muffon †, he brought the campaign to a speedy and successful issue.

He was greatly instrumental in forwarding the progress of the Reformation. Although inclined to favour the new doctrines, yet he was never hurried away by a misguided zeal. Unwilling to renounce the religion in which he had been educated, without the strongest conviction of its superstitious tendency, he studied the controversy between the two sects, and weighed the arguments on both sides with the utmost deliberation; but he no sooner became a profelyte to the reformed opinions, than he shewed himself as zealous in promoting, as he had previously been circumspect in adopting them. Nor did he only favour the reformation by his example and authority, but he even promulgated its doctrines. As few natives of Engadina were qualified, by their learning and theological knowledge, to preach in the Ladin, the progress of the reformation was considerably retarded. For these reasons John de Travers, who had critically studied and written in his own tongue, condescended to instruct the people. Having obtained the permission of the church, he ascended the pulpit ‡, and explained in the most perspicuous manner the Christian doctrines. His distinguished abilities, his exalted rank, his venerable age, and his amiable character, drew from all quarters a numerous audience; while his discourses, delivered with a noble simplicity of eloquence, made the deepest impression, and never failed to increase the number of profelytes. This respectable man finished his career, which had been so useful to his country, and so honourable to himself, in 1560, and in the 80th year of his age. His writings in the Ladin, which gave rise to this digression, were, a poem in rhyme, describing the war of Muffon; many sermons; and several sacred dramas in verse.

The example of committing the Ladin to writing was next followed by Philip Salutz called Gallicius, one of the earliest reformers among the Grisons; who, in 1534, translated the Lord's prayer, the Apostle's creed, and the decalogue, into the dialect of Lower Engadina, and not long afterwards, some chapters of Genesis from the Hebrew, and the Athanasian Creed; which were distributed in manuscript among the natives. Huldric Campbel wrote several sacred dramas, in the representation of which he himself assisted; and also turned some of the psalms into verse.

* Ille quidem anno 1483 natus, bis Vallis Telinae Gubernator. Episcopalis Aule Curator, plurimis ad externos Principes legationibus clarus, in Patria vero omnibus honoris gradibus natus, eruditione, deservitate, et auctoritate unus in Retia florbat; ut Respublica lumen, fidus, et decus merito habentur. Eo virtutes quia nullam ipsi conciliaverunt famam, nulla in Republica momenti agebatur causa, cujus vel arbiter non esset vel consilium non advocaretur, &c. Aporta, tom. i. p. 229.

† Situated near the Lake of Como, not far from Gravedona.

‡ Stupuit tunc ordo Evangelicus, stupuit tota Retia contemplans eximium inclitumque Heroa, inter Retie gentis optimates, diu principem habitum, summis etiam, patriæ honoribus, debito virtutibus premio insignitum, senio nunc consuetam suggestu in publica sacra æde consensu, populum docere, et alia Ecclesiastica munia, quando res polebat, operam suam cum ordinario Ministro conjungendo, et laborem participando, summo audientium applausu undique ex locis circa vicinis, integris turnis ad ejus sermones audiendos confluentibus, obiit. Aporta, tom. ii. p. 239.

But these compositions, being only in manuscript, were too scarce for general use; and Tutschet of Samada, more known by the name of Biveronius, was the first who ventured to publish in his native tongue. That celebrated reformer, finding, from experience, that the want of religious books in the colloquial language was a great obstruction to the progress of the reformation, printed at Pulchiano, in 1560, a small work *, which contained an alphabet, the Lord's prayer, the Apostles' creed, the Ten Commandments, and several occasional prayers. This little publication, being well received, was followed by a work of the greatest importance, a translation of the New Testament †.

In 1562, Huldric Campel printed a poetical translation of the Psalms ‡ of David, and other hymns, for the use of the reformed churches; this publication afforded a striking proof of the author's genius, who was able to give so much harmony of metre and variety of rhymes to the language in so rude a state. Besides the benefits which this psalter produced in a religious light, it was also serviceable in a literary view; as it contributed to diffuse a taste for poetical composition among his countrymen, and convinced them that divine truths might be inculcated in a pleasing diction.

Aporta, in his excellent History of the Reformation among the Grisons, says that the language of Biveronius is (like infant dialects) rude and unpolished, both as to the mode of expression and orthography, and is scarcely understood at present; that Campel greatly refined it, and endeavoured as much as possible to reduce the words and orthography to a similarity with the Latin, which was the mother tongue. Hence we may observe, that the publications of Biveronius afford the most curious specimen of the Ladin, as it existed in its most ancient state, when it was chiefly a colloquial language.

The possibility of writing and printing the Ladin was no sooner proved by such authorities, than the press teemed with productions calculated to disseminate the reformed opinions. These publications, however, (not excepting even the performance of Campel) as well as all which appeared in the fifteenth and in the beginning of the sixteenth century, are now obsolete, and, without a glossary, almost unintelligible to the natives themselves, who have not made them their particular study.

No version of the whole Bible was published in the Ladin before the year 1679; it was printed at Scuol in the dialect of Lower Engadina; and republished with various explanations and a new index, in 1743. Besides the translation of the New Testament by Biveronius, which is obsolete, a new § version was printed 1640 in the dialect of Upper Engadina, and is in common use. But the natives of this district have no other version of the Old Testament than that of Lower Engadina.

As it would be uninteresting to send you a dry catalogue of the several publications in the Ladin, I shall therefore only remark • in general that except a history || of the Grisons compiled from various authors by Aporta, the books in this tongue solely treat of religious subjects. Some of our theological tracts, particularly those written by our

* I possess a copy of this scarce work, reprinted at Zurich 1621, but without the title page. At my request the learned Aporta favoured me with an accurate catalogue of all the books printed in the Romanish of Engadina and of the Grey League, accompanied with many critical remarks, which I have made use of in this letter.

I once proposed to print this catalogue, which gives the titles of 82 books printed in the Ladin, and 26 in the Romanish of the Grey League; but relinquished it because it would have swelled this work too much, and would be uninteresting to the generality of readers; I shall therefore only insert, in the Appendix, the titles of the Bibles, and of the books printed in the sixteenth century, together with a vocabulary of the language.

† No 1.

‡ No 3.

§ No 6.

|| No 7.
divines

divines of the last century, are translated into their language; of these I observed, among the list of books in my possession, Bayley's *Practice of Piety*, and Baxter on *Vows*.

The Romanish of the Grey League remains to be considered. The earliest publication in this dialect is a catechism, translated from the German by Daniel Boniface, pastor of Furstenan, and printed in 1601. It was soon followed by a metrical version of several psalms, accompanied with other hymns, published at Coire in 1611.

The author of this useful psalter was Stephen Gabriel, a native of Vettan, in Lower Engadina, and pastor of Ilants; he was a man of considerable learning, and his zeal for the reformed religion exposed him to the fury of the Catholics, who, in 1620, plundered his house, burnt his library, and hung him in effigy. Gabriel having escaped to Zurich, drew up, during his retirement, an account of the controversy, between the Protestants and Roman Catholics, which in those turbulent times, nearly excited a civil war among the Grisons. This polemic treatise, written in the Romanish, was printed at Zurich in 1625, and answered in 1630 by a Roman Catholic priest in the same tongue; a work which is probably the first production printed by the Catholics in the Romanish. Upon the cessation of the civil commotions Gabriel returned to Ilants, where he passed the remainder of his days in tranquillity.

Stephen was succeeded in his preferment and literary pursuits by his son Lucius Gabriel, who, in 1648, gave a version of the New Testament, a work much wanted; as the inhabitants of the Grey League were mostly ignorant of any but their own language, and could with difficulty comprehend the translation in the dialect of Engadina. It is remarkable, that this version, which was printed only forty-eight years after the Romanish of the Grey League became a written language, should still continue in use; a proof either that the language has not received the same degree of refinement as the Latin, or that the first persons who wrote in this idiom took great pains to settle the orthography, and arrange the grammatical construction.

The list of books published in this dialect are for the most part, far inferior, both as to number and merit, to those written in the Latin; for, excepting the two Gabriels, the Grey League has furnished few men who have distinguished themselves by superior learning.

A complete translation of the Bible was not given before the year 1718; it was published at Coire, at the expence of the Clergy of the Grey League, and dedicated by the printer to George the First, who sent in return a present of fifty guineas. This sum being delivered to the printer, and claimed by him as his own property, occasioned a law-suit between him and the editors: the latter, however, although in equity they had the sole right, were never able to obtain any part of the donation.

LETTER XCI.—FROM DAVID PENNANT ESQ. TO THE AUTHOR.

On the Italian Bailiages of Switzerland.—Journey from the Top of the St. Gothard to Milan.—The Levantine Valley.—Bellinzona.—Locarno.—Town and Lake of Lugano.—Lago Maggiore.—Borromean Islands.

SIR,

LITTLE is wanting to complete your description of Switzerland and its dependencies; that chafin I now endeavour to fill up. Youth and inexperience must serve as excuses for errors and omissions. Happy if this hasty sketch may excite the curiosity of yourself, or any other traveller equally intelligent, whose observations may amuse and instruct mankind. The route which I here attempt to describe, is connected with your work; a route which would afford satisfaction to the curious of all nations who take you as their guide.

The highest parts of the principal Alpine passes are chiefly occupied by a small plain or basin; as the St. Bernard, the Gemmi, the Splügen, and the St. Gothard. From the summit of the St. Gothard I commenced my route on the 2d of August 1786. I followed the course of the Tesino, which you mention in your letters; it passes by the Capuchin convent, and is soon after joined by two other rills from the neighbouring mountains. Near this spot the Levantine valley begins, and Switzerland, properly so called, may be said to terminate. The descent on the side of Italy is much steeper, the views more savage and picturesque, than in the ascent from Urikeren, and the road is conducted with equal skill. The majestic scenery is heightened by the Tesino tumbling in an almost uninterrupted cataract; sometimes pent up in a narrow channel, or piercing its way through the remains of avalanches still unmelted, though fully exposed to the rays of a meridian sun. These enormous masses obstruct the road; and workmen are continually employed in promoting their dissolution; as the aggregate of unmelted snows, for a few summers, would bar all communication between Switzerland and Italy; with such difficulty are the few passes kept open!

After descending rapidly for three miles through this scene of dissolution, bounded on all sides by precipices, or impending rocks, the river foaming over blocks of granite, the ruins of the surrounding mountains; we crossed the *Ponte Tremolo*, or trembling bridge; where the view enlarged, and extended over a verdant valley sprinkled with numerous houses.

Airolo, the first small burgh, stands at the bottom of the steep descent; to the right is the passage over mount Grias to Munster in the Upper Valtais, practicable only from the middle of July to October, when three hundred horses transport weekly the cheese from the various parts of Switzerland.

At Dacio we found comfortable accommodations; that village consists only of a few houses seated at the entrance of a pass, capable of being defended with ease against the whole force of Italy. A wall and gate is added to its natural strength; but their principal use is to prevent contraband trade, and to exact a small toll for the merchandise which passes that way. For half a league is a succession of striking and romantic scenery; the perpendicular rocks scarcely affording room for the steep road, and transparent waters of the Tesino, which, thundering over the vast fragments, rises in a white foam, and subtle mist, visible only from refracting the rays of the sun. We crossed the torrent, in that short space, over three bridges thrown from rock to rock, whose span
and

and boldness of execution might vie with the boasted, because better known, Devil's Bridge.

Faido is the residence of the bailif, nominated by the canton of Uri. He remains in office four years, and his power is almost unlimited. Unfortunate insurrections in 1712, and in 1755, have been attended with the loss of the few remaining privileges to a people who struggled for liberty against democratic oppression*.

Giornico, called by the Germans Irnis, is famous for the victory which 600 Swiss gained, in 1478, over the troops of the Duke of Milan, amounting to 15,000 men; a victory which insured to the Swiss an honourable and advantageous peace. In this neighbourhood we first perceived the effects of a southern sun, and a lesser elevation above the sea, by the frequent appearance of vineyards, and the walnut and chestnut-trees of a very large size; the girth of several among the latter was not less than thirty feet. At Polegio, this bailliage ends.

The Levantine Valley, or *Valle Leventina*, is supposed to retain, by its name, traces of the *Lepontii*, the ancient inhabitants of the surrounding regions. Its length from the summit of the passage on the St. Gothard, is about eight leagues; the breadth very inconsiderable. The lower part is extremely populous, rich in pasturage, and produces much hemp and flax. In the neighbourhood of such lofty mountains, its climate must be variable, and liable to frequent rains. To prevent these rains from damaging their crops, the inhabitants suspend and dry the corn and grass on bars supported by two high poles about fifteen feet asunder. The houses are entirely of wood, and have externally the appearance of Swiss cottages; but a neglect of cleanliness proves the vicinity and greater similarity to the Italians. The Tesino is here joined by the Bromio, a torrent which takes its rise in mount Uccello, or the Vogelsberg, near Splügen; a bridge over it is the boundary of the two bailliages of the valleys Levantine and Polese, and leads into that of Riviera. The valley now becomes perfectly flat, and of course subject to violent inundations; the few villages are scattered on the sides of the steep mountains; below all is desolate. Ollogna, the residence of the bailif, consists only of a few houses. The country soon improved; the ground rose gently from the bed of the river, when we came in sight of the beautiful town of Bellinzona, situated in a delightful plain, encircled with ancient walls and battlements in good repair; to the right rise majestically the ruins of an ancient castle; to the left, separately embosomed in trees, are the castles of the bailifs of the three regent cantons, Uri, Schwitz, and Unterwalden.

About the beginning of the fifteenth century, the Swiss, at peace with the House of Austria, seem first to have been stimulated with the ambition of extending their dominions towards the south. In 1410, the whole Helvetic body, excepting the canton of Bern, passed their natural barriers, plundered the town of Demo d'Ofelia, and the adjacent country, and returned laden with spoil to pass the winter in their humble cottages. Elated by success, the ensuing summer saw them again descend into the plains of Italy, and ravage the duchy of Milan, then subject to the Visconti; they again retired, but without attempting to make a settlement. Bent on these enterprises, we are not surprised, that, in 1422, the three original cantons purchased the town of Bellinzona from its owners the counts of Sax; or that Philip Maria, duke of Milan, exerted himself to prevent from falling into their hands a town so important, from its situation and natural strength, to check their inroads, and cover his dominions. Having therefore taken possession of it by force of arms, a body of 8000 Swiss passed the Alps.

* The Levantine Valley was included in the canton and department of Bellinzona.

The forces of both nations met; the Italians were led on by Carmagnola; a bloody battle ensued, of which both sides claimed the victory; the Swiss retired with a flag and taken from the enemy, who remained masters of the town.

Excepting some inroads, nothing of importance was again transacted to the south till the year 1496, when Galeazzo Maria Sforza, the new Duke of Milan, formed an alliance with his transalpine neighbours: the first article was the cession of the Leventina Valley to the canton of Uri, for which he was annually to receive three Hawks and a cross-bow. Yet ten years after, when Charles duke of Burgundy threatened the total destruction of the republic by his powerful invasion, the treacherous duke of Milan sent a body of troops to his assistance, who were intercepted in the Valais, and worsted. On the defeat and death of Charles at the battle of Nancy, they again resolved to make an attempt on Bellinzona; but as the season was too far advanced to undertake the siege, a body of 600 Swiss resolved to winter at Giornico. The duke collected an army of 15,000 men, and attacked them in their entrenchments, but was repulsed with the loss of 1400 of his best troops. The mountaineers were enriched with the spoils; but no regular attack was made on the object of their invasion.

From this period the wars in which the Swiss engaged no ways concerned themselves; they sacrificed their blood in foreign quarrels, and the contending parties made use of their superior valour to attempt or establish conquests in Italy. In 1500 the three cantons obtained what they had so long contended for: the inhabitants of Bellinzona, vexed by the frequent changes in the Milanese, voluntarily surrendered to them. The French, when they had conquered the duchy, in vain reclaimed it; the Swiss retained possession; and the seven Italian bailliages were formally ceded to them by Maximilian Sforza, in gratitude for their having reinstated him in the ducal seat. Courtied or feared by all parties, those valuable territories were confirmed to them by the French, and finally by the House of Austria.

The baillif remains in office two years; he is nominated reciprocally by the three cantons, and is generally removed from Riviera the poorest, to Bellinzona* the most lucrative of the three governments. An appeal lies from his decision to the syndicate, and from that court to the three cantons: in ecclesiastical affairs, the inhabitants are cognizable to the bishop of Como, excepting three parishes. Most of the natives understand Italian, but the language is a corrupt German.

The interior of Bellinzona by no means corresponds with its external beauty and situation; the streets are narrow, and the houses ill built. We continued our journey south on the banks of the Tesino, which we crossed in a bad ferry: that river is here increased to a considerable size, by the numerous additions it has received in its course, particularly from the Misa, a torrent which takes its rise in the St. Bernardin, and flowing down the Val Mafox, forms a junction above Bellinzona. The valley is level, and laid waste by numerous torrents; the road runs along the sides of the hills through continued vineyards. We proceeded at the foot of the western chain of hills; a similar ridge bounds the view to the east, both clothed to their summits with woods of chestnut and walnut trees, half concealing frequent spires and numerous hamlets. Before us the view extended to a part of the Milanese, over the lake of Locarno, or Lago Maggiore. Having reached its north western extremity, we coasted its banks for two or three miles; and arrived at the town from which it derives its name.

* These three bailliages are in the new division consolidated into the canton or department of Bellinzona.

Locarno contains about 1500 inhabitants. Part of the town is built on piazas in form of a crescent with two wings; in front is a row of trees, and the public walk: the old part of the town is dirty, and the streets narrow. It contains three convents, and a small Franciscan monastery, perched on a rock overhanging the valley, and commanding a superb view of the lake and its magnificent boundaries. The canopy, in the church of the Capuchins, deserves to be mentioned for its beautiful execution; it is of straw-work, and almost rivals velvet and gold fringe.

Of the four transalpine bailliages which belong to the twelve cantons, Lugano holds the principal rank, Locarno the second. The governor, or *gouverneur* as he is called, is sent in succession by all the cantons except Appenzel; he remains in office two years; in criminal affairs his decision is absolute; in civil, an appeal lies to the annual syndicate from the regent cantons, and from thence to the Helvetic body assembled at the diet. The emoluments of this post are not great; but the profits unfortunately depend too much on the virtue of the man, as they arise principally from fines exacted for criminal offences. The people enjoy some privileges, and hold an annual assembly in the month of January, in which they elect twenty counsellors; twelve out of the town, three from Alcona, the remainder from the country at large. These counsellors have the charge of watching over the interests of the republic, as far as does not interfere with the superior powers, of settling the public expences, and of raising the supplies paid to the governor. These bailliages do not produce corn sufficient for their domestic consumption; that grain is furnished by treaty from the duchy of Milan, and is weekly imported from Livino, a village on the opposite shore. The chief food of the peasants is a cake made with maize and millet; the inhabitants on the banks of the lake are well supplied with fish.

The fisheries give employment to a great number of hands, although they are in some degree subject to monopolies. In the months of May and June, from 200 to 250 lb. weight are taken in a day: trout of 40 lb. and perch of 9 lb. are found in the lake.

In 1555, the doctrines of the reformation had made considerable progress in these parts: but the Catholic cantons, at the general diet, obtained an edict, that those who refused to return to the ancient faith should quit the town and province. Numbers, thus driven from their native country, were received with open arms by the canton of Zurich, which was benefited by their industry, and owes to them the introduction of the silk manufactures.

Locarno was once situated on the lake, and had a port capable of receiving large barks: at present it stands at the distance of a quarter of a mile: a circumstance owing to the accumulation of sand brought down by the torrent Maggia.

The little voyage from hence to Magadino is delightful: we crossed the upper part of the lake in an hour; the banks of this noble piece of water rise boldly, and are well wooded; Locarno forms a fine object, to the south is the opening into the Val Maggia, terminated by mountains covered with eternal snow. The spot where we landed consists only of a few scattered houses, for the purpose of receiving the merchandise, which is put on shore and sent on horses to Bellinzona. Old Magadino is more inland, and owed its origin to the vicinity of the lake, the retreating of which has caused its ruin. From thence the road winds up the steep sides of the mountain Cenero, through woods of walnut and chestnut trees, interspersed with oak and holly; on the summit of the passage is a small oval plain, the boundary of the bailliages of Locarno and Lugano. Our

* These two bailliages of Lugano and Locarno, together with those of Val Maggio, Mendricio, and Balerna, are formed into the canton or department of Lugano.

descent lay between the hills, through luxuriant and verdant vallies, peopled with numerous villages, and rich in every production. The vines, laden with fruit, are conducted in elegant festoons from tree to tree; a constant variety of scenery, softened by the glow of a setting sun, and next silvered by the moon glimmering on the distant lake, heightened the charms of our journey through this Elysian country.

The situation of Lugano is delightful; it is built round the curve of a bay, and backed by a fine succession of hills, rising in gentle swells to a considerable height: in front, a bold mountain clothed with forest projects into the lake, of which a noble branch extends to its right and left. To that spot boats of every size are continually passing and repassing, its base being perforated with *cantine*, or caverns, to which the inhabitants send their meat, and all sorts of provision, where it is kept untainted for seven or eight days, and the wine preserved with a delicious coolness. Enjoying the advantages of a southern climate, it has few of its inconveniences: the heats are moderated by the surrounding hills and the cool breezes from the lake. It is no less sheltered from the Alpine blasts, which, chilled by the neighbouring snows, would otherwise descend with violence, and destroy the temperature of this equal climate. Olive, almonds, and all the southern fruits, ripen here to perfection.

Lugano is the emporium of the greater part of the merchandize which passes from Italy over the St. Gothard, or the Bernardin. At the end of autumn, the Swiss mountaineers bring down numerous herds of cattle for sale, and return with less bulky commodities. The town contains about 8000 inhabitants; most of the houses are built of tuff-stone; the residence of the *capitano*, or governor, is a low building; on the walls are the arms of the twelve *Regent* cantons. On an eminence above the town stands the principal church, remarkable only for the beautiful carving in stone round the doors, and rose window, and for the delicious prospect from its terrace. In the cloisters of the Recollets is a capital picture, attributed to Luvino: their church is handsome, and the screen is ornamented with the painting of the Passion, by the same master. The palace of the marquis de Riva contains a few good pictures.

We then embarked upon the lake of Lugano*, which is about twenty-five miles in length, and from two to four in breadth: its form is irregular, and bending into continued sinuosities. The town is a fine object, backed by the amphitheatre of hills; the banks on each side are bordered with a succession of gardens and villas. After visiting the noble branch pointing northward, we crossed to the Cantine, and continued our voyage under the precipitous rocks, whose bases are lost in the depths of the lake. We landed at Porto, a small village in the duchy of Milan, situated at its southern extremity.

From this point an arm of the lake bends northward, and discharges itself into the Lago Maggiore, by means of the river Trisa. It is scarcely possible to imagine a more perfect or greater variety of beauties than this noble piece of water affords; the vast overhanging woods, the bold precipices, the transparency of the water, unite to form a scenery in the highest degree luxuriant.

From Porto the traveller may observe, with satisfaction mingled with compassion, the strong contrast of a free and arbitrary government: the borders of the lake subject to Switzerland studded with a succession of villages, houses, and gardens; this part of the Milanese desolate, and almost unpeopled.

* The lake of Lugano is about 190 feet perpendicular higher than the lake of Como, and Lago Maggiore. The two last-mentioned lakes are of the same level, and about 240 feet higher than the city of Milan. *Vari Storia di Milan*, p. 5. *Abb. Frisi Dei Canali Navig. di Lombardia*, 4to. p. 465.

On leaving that village, the hills begin to diminish, and in the course of three miles are totally lost in the rich plain of Lombardy. Varese is entirely composed of the seats of the Milanese nobility. The principal palazzo is the residence of the duchess dowager of Modena; the gardens are laid out in the old taste; the artificial mount commands a fine view over a rich plain, a small lake, and bounded by the long chain of Alps. In the magnificent saloon are some tolerable portraits of the families of Modena and Austria. The emperor, as duke of Milan, has exerted himself in the suppression of convents; a Franciscan monastery has fallen a sacrifice to his plans of reformation.

The road from hence to Laveno, a small burgh on the Lago Maggiore, is varied, and the country very rich; to the right, on an eminence, is San Sacramento; to the left we passed near some lesser lakes. From Laveno we were rowed across the delightful passage to Isola Bella, one of the famous enchanted islands so particularly described, and with such pleasure, by Bishop Burnet and Keyser, who compares it to "*a pyramid of sweetmeats, ornamented with green festoons and flowers*." But as the taste of mankind alters with the succession of years, I considered it only as a monument of expence and folly; terrace rites above terrace in regular gradations, bordered with flower-pots, or gigantic statues of horses, gods and goddesses; the whole is raised upon arches, and the soil has been brought from the shore to cover them. The palace is magnificent, and contains a profusion of marbles and paintings; the lower part of the house overhangs the lake on one side, where several apartments are furnished in the style of grottos; the floors, pillars, and walls, are inlaid with various-coloured stones, marbles, and shells; the view and the coolness united, make this part a delicious summer retreat.

If any thing justly gives this island the appellation of enchanted, it is the prospect from the terrace; the gradual diminution of the mountains from the regions of eternal snow to the rich plain, the sinuosity of the lake, its varied banks, the bay of Margozzo bounded by vast hills, the neighbouring burgh of Palanza, and more distant view of Laveno, the numerous villages, the Isola Madre, on which is a palace of the Borromean family, and another island sprinkled with fishermen's huts form a delightful assemblage. These islands, and the whole western coast of the lake to the bailliage of Locarno, was ceded to the king of Sardinia, by the late empress queen, at the treaty of Worms, in consideration of the assistance which she received from that monarch.

We re-entered our boat, troubled by the importunities of the beggars, whose miserable huts adjoining to the palace disgrace the island. Belgeritta is a neat village, containing four excellent houses, and a handsome church. From thence we continued our voyage down the lake. The tract of country to our right, from near Palanza to ten miles south of Arona, pays a small contribution to the Borromean family for feudal rights. That family receives a toll from the merchandise which passes, grants the privilege of fishing, and appoints eleven judges in the respective villages; but an appeal lies from their decision to a superior, nominated by the king of Sardinia, and resident at Palanza, and again to Turin. The riches of this opulent house are now increasing from the product of the gold mines, which lie amongst the most inaccessible parts of the mountains, thirty miles from Margozzo. Above Arona is a seminary for forty boys, founded by San Carlo Borromeo; near it his colossal statue, sixty feet in height, is placed on a pedestal of just proportions; he is represented in his cardinal's habit, the right hand extended, a book under the left arm. The statue is of bronze, was cast at Milan, and brought in separate pieces. San Carlo, nephew to Pope Pius the Fourth, was born near this spot; he passed with early credit through his studies, and the dignities of the church; was made a cardinal, and archbishop of Milan. His

charity

charity and pious exertions, during the plague which ravaged his diocese, the subject of so many fine pictures at Milan, insure him more general renown than his canonization in 1610.

Arona is a small town, with a neat port; above it rises a ruined castle, which, in the earlier part of the Milanese history, was a place of the utmost importance: at the period when the great contests arose between the families of Visconti and Torriani, this castle was the perpetual object of capture and reprisal. Otho Visconti, the archbishop, who at length gained the ascendancy, was twice repulsed and driven from hence. Two promontories project into the lake at this spot; the eastern is crowned with the castle of Angghiera, and gives name to this valuable province, which in 1397, to gratify Galeazzo, the second duke of Milan, was erected into a county by the emperor Wenceslaus, and has since been transferred to the King of Sardinia. On doubling the promontory of Arona, the lake again enlarges, and forms a bay; the banks are very low. Soon after entering the Ticino we landed at the dirty village of Sesto; hired another boat, and were hurried with great rapidity down that river, between high banks of gravel, to the commencement of the *Naviglio Grande*, the great canal which forms the junction between the Po and the Adda, calculated not less for conveying merchandize and wood to Milan, than for benefiting the neighbouring country with partial inundations, and for the purpose of laying the rice fields under water. Its breadth at first is great, but narrows as we advance, and the stream becomes almost a dead water*.

If bad weather and other circumstances had not prevented me from extending my tour, I purposed visiting the bay of Margozzo, Dono d'Ossella, Varallo, and the gold mines in its neighbourhood; an excursion, which, from the reports I have heard, could not fail of affording the highest satisfaction to the naturalist, and the lover of nature in her great features.

* According to the Abbe Frisi, the length of the Naviglio is 86,000 braccia, or 14 Italian miles (66 to a degree); its breadth at the entrance 7, which gradually diminishes to 6; and the perpendicular height of the fall of water is 58; at first 5 braccia per mile gradually decreasing for the first twelve miles until it is no more than one braccio in a mile; then increasing for the five next miles to a little more than five braccia in a mile. See *Canal Navig. di Lomb.* C. 1. A Milanese braccio is to an English foot nearly as 22 to 11.

